

DIPTERA

FAM. EMPIDIDÆ

by Axel Leonard MELANDER, Sc. D.

WITH 4 COLORED
AND 4 MONOCHROME PLATES

INTRODUCTION



THE present study was inaugurated in 1900 at the suggestion of Dr. William M. Wheeler, who had been gathering together a collection of Empididæ during the ten previous years. A paper on the Central American species was issued in 1901 with Dr. Wheeler as joint author. The next year was published a monograph of the North American Empididæ exclusive of the genus *Rhamphomyia*, and this has been followed by several short papers in the intervening time. A sojourn of twenty years near the Pacific Coast, where species of Empididæ are particularly numerous, has enabled the writer to get together an extremely rich collection of this family, numbering many hundreds of species and many thousands of specimens. This has been supplemented by specimens received from the following collectors, to whom, naturally, the warmest gratitude is due. Their liberality in furnishing specimens has made possible much of the following contribution.

C. F. Adams, Atherton, Missouri; J. M. Aldrich, Washington, D. C.; C. F. Baker, Los Banos, Philippine Islands; Nathan Banks, Cambridge, Massachusetts; Germain Beaulieu, Montreal, Canada; William Beutenmueller, New York, N. Y.; J. Chester Bradley, Ithaca, New York; C. S. Brimley, Raleigh, North Carolina; Charles T. Brues, Boston, Massachusetts; Gustav Chagnon, Montreal, Canada; T. D. A. Cockerell, Boulder, Colorado; F. R. Cole, Redlands, California; A. B. Cordley, Corvallis, Oregon; R. A. Cooley, Bozeman, Montana; E. T. Cresson, Jr., Philadelphia, Pennsylvania; C. R. Crosby, Ithaca, New York; W. Dietz, Hazleton, Pennsylvania; R. W. Doane, Stanford, California; Charles T. Greene, Washington, D. C.; H. S. Harbeck, Philadelphia, Pennsylvania; S. Henshaw, Cambridge, Massachusetts; J. S. Hine, Columbus, Ohio; S. J. Hunter, Lawrence, Kansas; Eldred L. Jenne, deceased; O. A. Johannsen, Ithaca, New York; Charles W. Johnson, Boston, Massachusetts; O. B. Johnson, deceased; Trevor Kincaid, Seattle, Washington; Frederick Knab, deceased;

Adolphus Lutz, Sao Paulo, Brazil; William M. Mann, Washington, D. C.; C. L. Metcalf, Urbana, Illinois; W. L. McAtee, Washington, D. C.; Harold Morrison, Ithaca, New York; William Nason, deceased; H. S. Parish, Toronto, Canada; C. V. Piper, deceased; F. Rogers, Kansas City, Missouri; Pablo Schild, La Suiza de Turrialba, Costa Rica; R. C. Shannon, Washington, D. C.; F. Sherman, New York, N. Y.; Mrs. Annie T. Slosson, New York, N. Y.; A. H. Sturtevant, New York, N. Y.; Roland Thaxter, Cambridge, Massachusetts; E. S. Tucker, deceased; M. C. Van Duzee, San Francisco, California; O. S. Westcott, deceased; William M. Wheeler, Boston, Massachusetts; P. W. Whiting, Boston, Massachusetts; A. J. Wiedt, Newark, New Jersey; M. A. Yothers, Yakima, Washington.

A most important set of specimens was secured in the unworked material belonging to the United States National Museum and that of the Bureau of Biological Survey. This represents the Empid collecting of the Government entomologists and contains much material from the following: J. M. Aldrich, H. S. Barber, G. W. Belfrage, F. C. Bishopp, Robert Brown, Owen Bryant, August Busck, A. N. Caudell, T. D. A. Cockerell, D. W. Coquillett, Crevecœur, R. P. Currie, R. A. Cushman, E. Daecke, George Dimmock, H. G. Dyar, A. K. Fisher, O. Heidemann, L. O. Jackson, C. R. Jones, J. R. Malloch, W. L. McAtee, J. D. Mitchell, H. K. Morrison, W. D. Pierce, F. C. Pratt, C. V. Riley, S. A. Rohwer, E. A. Schwarz, R. C. Shannon, Mrs. Annie T. Slosson, E. S. G. Titus, C. H. T. Townsend, L. M. Turner, W. V. Warner and E. B. Williamson.

Through the courtesy of C. Howard Curran the unworked Empid material belonging to the Canadian National Museum has been procured and this collection has added several species to the following pages.

A splendid reference collection of about five hundred determined species from Europe and other foreign places has been gathered together through the interest of the following well known dipterists, and has furnished a basis for much of the work.

Theo. Becker, Liegnitz, Germany; Mario Bezzi, Torino, Italy; E. Brunetti, Calcutta, India; E. O. Engel, Dachau, Germany; Richard Frey, Helsingfors, Finland; F. Hermann, Berlin, Germany; F. W. Hutton, New Zealand (deceased); K. Kertész, Budapest (deceased); William Lundbeck, Copenhagen, Denmark; David Miller, Wellington, New Zealand; Lorenz Oldenberg, Berlin, Germany; Gabriel Strobl, Admont, Austria.

In the preparation of this work there have been studied the types of eighty-five per cent. of the North American species, amounting to nearly four hundred species. The remainder, the types of the species described by Say, Macquart, Bigot, Walker and Osten-Sacken, are either no longer in existence or are not available to the American student.

The following pages include a discussion of the genera of the Empididæ, a list of the known species together with their bibliography, descriptions of new forms, and here and there tabular keys to species, particularly to those of North America. Unless otherwise designated the types of the new species are in the author's collection. Where no individual is mentioned by name as collector for the new species, the material has been collected by the author.

This study was presented at Harvard University in 1914 in fulfillment of the thesis requirement for the degree of Doctor of Science. At that time the breaking out of the World War and its centralization in Belgium precluded publication in Wytsman's *Genera Insectorum*, and the report has been held in abeyance during the meantime. It is now presented with the inclusions and modifications necessitated by the lapse of ten years.

Contribution n° 240 from the Entomological Laboratory of the Bussey Institution for Applied Biology, Harvard University.

Phylogeny. — « These of course are not all the lines of evolution in Diptera, but I believe that they are all irreversible, that evolution has never recovered anything once functionally lost. Moreover, all, or nearly all these lines of evolution are polyphyletic, resulting in numerous cases of parallel resemblances which must be taken into account in any attempt at *true* classification. » (S. W. Williston, Manual of Diptera, 3d. ed. p. 61 [1908].)

The Empididæ include more diverse forms than any other family of Diptera. There is no conservatism to an Empid type, indeed there is no Empid type. Between the full neuration of *Brachystoma* and the reduced venation of the highly specialized *Tetraneurella* there is so great a range of wing structure that one wonders why such diverse forms should be associated.

By usual assent the Empididæ have been grouped with the Dolichopodidæ, forming a division of predatory flies called by Brauer the Orthogenya and by Verrall the Microphona. More or less nearly related to these insects are such families as the Asilidæ, Bombyliidæ and Therevidæ, and more remotely in their ancestry such as the Leptidæ and Rhyphidæ. Characters occurring in the Empididæ and also possessed in common by this series of families may usually be regarded as primitive. Postulating thus, the ancestral Empid probably had wings with broadly rounded anal angle, the costa encompassing the entire wing and margining the large alula and calypter as well, the auxiliary vein distinct and complete, ending independently in the costa near or beyond the middle of the wing, the first and second veins simple and long, terminating toward the end of the wing, the third vein with a long fork, the pedicel of the second and third veins arising well toward the root of the wing, the discal cell complete and emitting three simple posterior veins, a strong thickening or fold in the wing membrane beneath the humeral crossvein, the basal cells long, the anal cell acute at its end since the so-called anal crossvein was not at all recurved. Moreover the following characters were probably indicated: head globular, eyes dichoptic and bare, proboscis short, antennæ short, distinctly three-jointed, the last joint ovate-conical and terminated by a three- or four-jointed short style. Thorax small, the metathorax larger than the scutellum, no discal bristles, mesopleuræ hairy, metapleuræ bare, but velvety in front of the spiracle; abdomen slender, long and cylindrical, pygidium symmetrical and small, no telescopic chitinated ovipositor. Legs simple, slender and elongate, without bristles or apical spurs.

There is of course no living Empid that combines these characters, nor is any such extinct form known, but it is not difficult to picture a delicate bodied insect four or five millimeters in length, with feeble powers of flight and with the structure given above. It would not be overstepping the bounds of analogy to predicate further that this insect was of cinereous brownish coloration, had yellowish legs and hyaline wings, unmarked by a stigma, that it was predatory on smaller weaker insects and lived in shady woods to the North, the adults appearing shortly after the winter snows had disappeared.

Evolution of the genera of the Empididæ has proceeded along certain lines recognized as a usual trend in the development of Diptera. Holopticism or the further development of contiguity of the eyes of both sexes appear again and again. There is a frequent tendency to robustness, with gibbous thorax, to the introduction of leg armature, specialization of the genitalia, development of metapleural setulæ and of thoracic bristles, fusion of the basal joints of the antennæ, a lengthening of the style into an arista, and a decided lengthening and specialization of the proboscis. In the wings there is a marked tendency toward reduction of the neuration, a shortening of the anterior and of the anal veins, thinning of the hind margin, suppression of the alula and diminution of the anal angle in one direction and lobation of it in another, and a shortening of the pedicels of the second and fourth veins and of the fork of the third. It is such trends as these that Dr. Williston had in mind in his words quoted at the beginning of this section. These tendencies toward specialization are not reversible: a fly with a forked third vein has not descended from one in which this vein is simple, for example, nor

has a genus with slender femora been produced by such forms as *Ædalea* or *Lactistomyia*. But an orthogenetic development of the highly specialized hind legs of these two genera does not necessarily bespeak a phyletic relationship between the two, even though the resemblances are continued to such details of structure as the setosity of the under side of the femur, the patellar bend at the knee, the shortening of the tibia and lengthening of the trochanter and even the compression of the tibia to a flexor edge. The similarities must be interpreted as parallel evolution, for *Ædalea* judged by its three posterior veins and dichoptic condition, is more generalized than the thick-legged Hybotinæ, and yet possesses the specialized anal cell and antennæ of the Ocydromiinæ. Both of these genera are better regarded as highly specialized convergent developments of two subfamilies, the result of an orthogenetic evolution. In a group of predatory insects, such as the Empididæ, it would be natural to look for raptorial legs, and such an adaptation does occur in each of the main groups. In *Hoplocyrtoma*, *Scelolabes* and *Palæoleptopeza* of the Ocydromiinæ the hind legs are fitted for grasping, and in the last genus the adaptation dates back to the Lower Oligocene. In *Platypalpus* the middle legs are modified, even to the patellar bend, and a similar but incipient tendency is noticeable in others of the Tachydromiinæ as in certain species of *Elaphropeza* and *Tachypeza*. In the Hemerodromiinæ it is the front pair that is modified, and so successful has this adaptation proved when on the first pair of legs that the coxæ have become lengthened to extend the reach. Of the Empidinæ, *Haplomera*, *Pachymeria*, *Enoplemis* and certain species of *Rhamphomyia* and *Hilara* present thickened femora.

It is my belief that the following tabulation of characters shows the principal lines of evolution in the Empididæ; that development has proceeded from the first set to the second and not in the reverse direction except in some cases of retrograde specialization; and that when two related genera are compared the one possessing a preponderance of the first listed characters is the more generalized and is ancestrally older. Quite obviously no present day Empid is the direct ancestor of another, but with due reservation, particularly with respect to homoplastic characters the tabulation will prove helpful in plotting the phylogeny of the several groups.

Generalized condition.	Specialized condition.
Head round.	Head hemispherical or lengthened.
Dichoptic.	Holoptic.
Facets uniform.	Area of large facets.
Eyes bare.	Eyes pubescent.
Face narrowly quadrate.	Face broad or excised.
Antennæ three-jointed.	Antennæ two-jointed.
Third joint conical.	Third joint elongate or short.
Basal joints simple and similar.	First joint setulose, second joint with bristle.
Style (terminal).	Arista (dorsal).
Proboscis short, vertical.	Proboscis long, no labella, inflexed or porrect.
Palpi two-jointed, bristly.	Palpi one-jointed, bare.
Body delicate.	Body heavily chitinized.
Pollinose.	Pruinose, or polished.
Slightly convex thorax.	Hunchbacked.
With few small bristles.	With many strong bristles.
Metanotum long.	Metanotum short and declivous.
Metapleuræ bare.	Metapleuræ with hairs.
Pygidium small and symmetrical, short penis, small valves.	Pygidium large or asymmetrical, long penis, large valves.

Generalized condition.	Specialized condition.
Ovipositor non-telescopic.	Ovipositor lengthened.
Legs simple.	Legs armed.
Femora and tibiæ with simple setæ.	Femora and tibiæ with scales, or ciliate.
Pulvilli.	No pulvilli.
Costa around entire wing.	Hind margin not thickened, anterior veins stronger, i. e. better fliers.
Anal angle full but not lobose.	Anal angle weak or else lobose.
Alula and large rimmed calypteres.	No alula, calypteres small.
Humeral crossvein present.	Absence of humeral crossvein.
Subhumeral crossvein.	No thickening under humeral crossvein.
Full neuration.	Neuration incomplete.
Veins fixed for the genus.	Veins unstable within the genus, adventitious veins.
Veins straight.	Veins undulating.
Auxiliary vein distinct, ending in costa.	Auxiliary vein near first, evanescent at end.
First and second veins long.	First vein shortened.
Third vein forked.	Third vein simple or with shortening fork.
Pedicel of second and third vein long.	Pedicel of second and third vein short.
Basal cells long.	Basal cells short.
	Second basal shortened at base.
Anal cell long, with acute end.	Anal crossvein perpendicular or reflexed.
Anal vein strong.	Anal vein abbreviate.
Anal vein continuous with under side of anal cell.	Anal vein distinct from under side of anal cell.

While it is a general principle that an organ once functionally lost is never to be regained there are however several instances in the preceding list of characters that appear confusing. For instance, metapleural hairs occur in so many groups of flies, even when the rest of the pleura is bare, that they would seem to be an atavic index. In the Empididæ the metapleuræ bear setæ or hairs in the genera centering about *Empis*, *Clinocera* and *Chelipoda*, all of which are specialized in their respective subfamilies. Moreover in the forms near *Hybos* and *Ocydromia* the pollen of the pleura becomes villous on the metapleura. These hairs probably bear some deep-seated relation to the little-understood structures at the base of the wing and are also influenced by the metathoracic spiracle, which, in their best developed form, they seem to protect. However in a single genus, e. g. *Empis*, the metapleural hairs range in number from a bushy coarse aggregation to but two or three fine hairs. Those species of *Empis* with but few hairs are in other respects not more primitive than *Oreogeton* which has a great cluster of metapleural hairs, and more likely are losing these structures as the result of a recent retrograde specialization. While such species will not be expected to give rise in the future to hairy forms, it is not so easy to be assured that some of the bare species, like *Toreus* or *Hesperempis*, possess a primitive lack of metapleural hairs or have lost them through secondary specialization.

An ancient stereotyped character that has much value in classification is to be found in the course of the so-called anal crossvein. Originally this posterior branch of the cubitus ended independently in the wing margin. Then for mechanical reasons it became flexed back, narrowing, closing and finally shortening the anal cell. Among living diptera every transition can be found from the open anal cell of *Rhyphus* to the minute vestige of a cell, as in the Acalypterates. In many forms the anal cell

completely disappears. Within the family Empididæ most of these transitions occur. *Brachystoma* has a long pointed anal cell, closed toward the margin of the wing, the posterior cubitus continuing its basal direction beyond the furcation. This is the primitive condition, possessed by the more generalized families. In *Empis* the posterior branch of the cubitus is abruptly reflexed and forms the hind margin of the anal cell. In *Clinocera* it is recurved rather than reflexed, but still is continuous with the under side of the anal cell. In *Anthalia* this vein forms a true crossvein, perpendicular to the two sides of the anal cell, apparently an intermediate condition. While this shortening of the anal cell is a mark of specialization it does not mean that the reflexed vein of *Empis* has necessarily passed through a perpendicular stage like that of *Anthalia*. It probably had a sudden origin, or possibly passed through the rounded condition observable in *Clinocera*. The closure of the anal cell affords a most valuable character for the determination of the subfamilies of the Empididæ. Those species with acute anal cell invariably belong to either the Hybotinæ or the Brachystomatinae. The Ocydromiinae, except for *Bicellaria*, always have the perpendicular crossvein and this is likewise true of all the Tachydromiinae that have an anal cell. The reflexed anal vein is preeminently an Empidinæ characteristic, occurring outside of this subfamily only in one line of the Clinoceratinae and in *Bicellaria*.

There are numerous tendencies evident in the Empididæ to develop parallel structures. A strongly gibbous thorax, so characteristic of the Hybotinæ, appears independently in *Microphorus*, *Bicellaria* and *Anthalia*. The first vein is setulose in *Oreogeton* and *Phlebotena*, which are not close relatives. The pygidium is bent over the abdomen, forming an epipygium, in the groups about *Clinocera*, *Hilara* and *Microphorus*. Holopticism has been produced in numerous unrelated genera. The Empididæ are further interesting in having extended the holoptic condition to the female, as in *Symballophthalmus* and in most of the Hybotinæ. Moreover the eyes may be enlarged below the antennæ instead of above. This tendency is noticeable in the Tachydromiinae, Hemerodromiinae and Clinoceratinae, and in the extreme cases, such as *Hemerodromia* and *Stilpon*, the eyes quite touch on the face. The formation of an arista is another example of homoplastic structures. The antennæ throughout the family show much variation and afford a series of good taxonomic characters, which however should not be stressed as much as was done by Coquillett. In their generalized condition the antennæ probably terminated in a short three-jointed thickened style. The basal joint of the style disappeared by coalition with the intermediate section, or apparently sometimes by fusion with the apex of the antenna, and in most forms the terminal part remained as a bristle-like segment, shorter than the preceding. This style has been replaced by an arista in many of the genera, but the mechanism of the change is obscure. The arista usually manifests a small basal joint and an attenuated outer portion, which corresponds to the original middle piece of the style. Among the most specialized genera of each of the subfamilies a lengthened arista is to be found.

Metamorphosis. — The early stages of Empididæ are relatively little known. The larvæ live as predators or scavengers in the ground or in rotting wood. Some have been found in the forests where the adults occur, some are semiaquatic, developing in mud. The species hibernate in the larval stage, pupating in early spring.

The larvæ are cylindrical, more or less spindle-shaped, and comprise twelve segments. The head is small, retractile, eyeless, with the two-jointed antennæ small but well developed. The labial plates and the longitudinal rods of the head meet angularly so that in profile they appear bent; mandibles lunate, maxillary palpi small, labium comprising two arcuate bands contiguous and angulate anteriorly. Prothoracic spiracles are small. Abdomen devoid of pseudopods or other appendages, most segments with transverse ventral swellings, the locomotor spinules forming bands on the anterior margins of the segments, the last segment more or less rounded, usually with a tooth or wart below on the hind edge and with a pair of large well separated and sometimes more or less elevated spiracles

above the lower protuberances. In the aquatic Hemerodromias the terminal spiracles are replaced by a bunch of delicate external tracheæ.

The pupæ are free, not encased in the last larval skin. The head bears two small carinated setigerous tubercles on the upper anterior part; antennal sheaths raised above the level of the face, directed downward and slightly outward and tapering apically; proboscis elongated. The thorax is generally furnished with long bristles but not with thorns. The respiratory organ may consist of short stalks (*Rhamphomyia*) or be greatly elongated (*Drapetis*). Prothoracic spiracles are present. The hind tarsi extend much beyond the wings. The abdomen may be provided above with girdles of small teeth alternating with bristles and ventrally with hairs alone, or may have a dense dorsal covering of small spinules. Seven pairs of abdominal spiracles are present. In *Hemerodromia* eight pairs of very long filiform tracheal tubes extend from the position of the spiracles.

Ethology and Occurrence. — Empididæ are especially abundant in the spring and early summer in the undergrowth of shady woods. They are prone to occur in mountainous districts and in rather humid regions. While such is the general distribution several of the genera have adopted specialized habitats. For example, most of the Clinoceratinæ frequent running water, some resting beside waterfalls or on water-splashed rocks in swift streams or even amphibiously entering the water; species of the Hemerodromiinae are to be found in the shady foliage overhanging the banks of streams; *Tachypeza* stalks over the trunks of smooth-barked trees; *Tachydromia* nimbly runs over rocks in search of its minute prey; *Platypalpus* occurs in the summer and is pratal; while *Chersodromia* and its allies are dwellers of the sea shore and as a consequence of strong sea breezes are loath to take to the wing, in some instances having the wings abortive. In dry regions Empididæ are rare, having given place to their more powerful predatory relatives, the Asilidæ. As a group the Empididæ are boreal, though this impression may be the result of the large number of species recorded from the mountainous regions of Europe and North America. Species occur in the tropics, notably the yellow-bodied *Drapetis* and *Syneches*, and a not inconsiderable number are known from the southern hemisphere. The small size, soft consistency and usual lack of distinction make the Empididæ less desirable objects of collection than the more striking exotic species, which may explain why some regions have produced a meager Empid fauna to date.

Feeding Habits. — Most adult Empididæ are predatory on small insects, notably the Diptera, the proboscis being developed for piercing the bodies of their victims. To assist in the capture of prey one or the other pairs of legs are sometimes modified into raptorial organs fitted with holding spines. Various insects are caught for their body-juices, but principally Diptera are selected. The larger species of *Empis* prefer the Bibios, the smaller species of *Empis* procure Cecidomyias. The prey of *Hybos* is usually hymenopterous. Many Empididæ are cannibalistic, feeding either on smaller related forms or even on members of their own species. An interesting way of procuring a miscellaneous lot of insects is to imprison a swarm of dance-flies in the net and sort over the victims dropped by the Empids. Borboridæ, Chironomidæ, Blepharoceridæ, Bibionidæ, Psychodidæ, other Empididæ, etc., sometimes rare species, are in the haul, and nearly always not having been crushed by their captors are in good taxonomic condition.

Many Empididæ frequent flowers. Of the Anthophilous species, some, like *Anthalia*, have a soft proboscis and perhaps are dependent on nectar, while others, like *Empis* or *Drapetis*, use their mouthparts also for the capture of insect prey.

Anæmotropism. — Because of the strange habit of some species of *Rhamphomyia*, *Empis* and *Hilara* of hovering and zig-zagging in the air in swarms, the family designation of Dance-flies has

been bestowed on the Empididæ. *Rhamphomyia sociabilis* is one of the most striking of the early summer species in Washington. By thousands it dances up and down, in and out, in an immense swarm, sometimes in the open and sometimes in the shade of a large tree. Some species of *Empis* skim back and forth in numbers among the tree tops. Reacting to air currents the group rises or lowers in a synchronized aerial dance. Other species of *Empis* and *Rhamphomyia* perform their dance closer to the ground, among underbrush or in the open spaces beneath forest trees. The species of *Hilara* and *Rhamphomyia* that hover over water weave in and out, in leisurely or in rapid erratic flight, barely missing the surface. The large metatarsi of the male Hilaras may touch the water but the insects are not wetted. In this surface dance the Hilaras may congregate on some small floating object and drift down stream, shortly to separate and return. Usually males predominate in the air-dances of the Empids.

Courtship. — No group of the Diptera offers more interesting and varied details of pygidial structure than the Empididæ. With the elaboration of primary and secondary sexual structures in pygidium, legs, wings, mouth-parts and vestiture, there has evolved a complex series of mating habits. The significance of many of the cases of sex dimorphism is not understood, since the mating of most of the species has not been observed. The procuring of insect prey and the anæmotropic dances just described are manifestations of the courtship instinct. Hamm and Poulton have suggested an evolutionary sequence in the complexity of behavior, the stages in the use of prey being somewhat as follows.

1. Prey devoured by both sexes independently of mating. Examples, *Tachydromia*, *Hybos*, some species of *Empis*.
2. The prey provided by the male as a gift anticipatory to copulation is devoured, or sucked by the female during amplexus. Examples, *Pachymeria*, *Rhamphomyia*, *Empis* spp.
3. The prey or object provided by the male is not devoured by the female, but acts as a love-charm or stimulus to insure amplexus. Examples, *Hilara*, *Enoplempis*.

Where prey is passed from the male to the female, as in the second and third stages, the act is regarded as a physiological necessity for copulation. Since Empididæ are cannibalistic the offering of prey to the female may have first functioned to divert her attention from her consort. Many anthophilous females have never been seen to imbibe insect juices except at the moment of copulation, dropping the prey furnished by their mates as soon as the sexes separate. With these species the use of insect prey is to be regarded as a philter, a stimulus rather than nourishment for the female.

A. T. Hamm has made extensive observations on the mating habits of English Empididæ. While there are of course species differences in behavior, the descriptions of two types observed by him are here given as characteristic. *Empis trigramma* is one of the species that does not depend on the transfer of a love-token during the wooing process. A male alights on a leaf near a female, flutters the wings and raises and waves the front legs. The female responds with the same actions. The male then rubs the front tarsi together while vibrating the wings, and the female repeats these motions. As the two approach each other they caress each other's front tarsi, whereupon the female elevates the tip of the abdomen and the male deftly flies to her back and copulation ensues.

Among the species where the male lures his mate with prey Mr. Hamm observed the male of several species of *Empis* pounce on a fly, holding it with the posterior legs while it inserted the proboscis into the neck to pierce the ganglia behind. With this quieted offering the male either zig-zags over the resting females, or, in the case where the females are engaged in their aerial dance, flies into the circle, bearing the victim encircled by his middle legs. The selected female is chased, overtaken, and during a struggle of a few seconds duration the offering is transferred to the female, and the pair settles in copula to the herbage below. The male is apt to support his burden by hanging to a leaf by his front legs, tightly clasping his mate with the posterior legs. While copulating the female squeezes the

prey continuously, methodically inserting the proboscis in various places, but after a few minutes, dependent upon the size of the prey, she terminates the copulation, drops the prey, cleans her proboscis, and the two fly away.

The male of *Empis aerobatica* uses a small midge as a nucleus about which it fashions a large frothy balloon. Flying with this structure between its hind legs it attracts a female who alights on the back of her selected mate. The two then settle slowly to the ground, and after copulation has been completed discard the balloon. Some of the European species of *Hilara* have developed almost exactly the same method of balloon construction during courtship. In these cases it is the balloon rather than the original midge about which it was constructed that furnishes the stimulus for sexual selection because sometimes the minute insect is omitted. Balloons that have been dropped, probably after pairing, are utilized again by other males.

The appearance of so specialized a habit as balloon construction in *Empis* in America and in *Hilara* in Europe might suggest phyletic significance. It is more plausible, however, to regard the habit as a simultaneous outgrowth from the general habit of offering prey for sexual selection, the result of the ability to blow viscous bubbles.

TABLE OF THE SUBFAMILIES OF THE EMPIDIDÆ

1. Discal cell always united with the second basal, three posterior cells, anal cell and the anal vein wanting or incomplete, auxiliary vein always vestigial and imperfect or wanting, third vein always simple, basal cells often large, alula absent, anal angle reduced, costa stopping at the fourth vein, usually no stigma; antennæ two- or three-jointed, with a long terminal or subdorsal two-jointed arista; proboscis short, vertical or inflexed, palpi one-jointed, more or less incumbent on the proboscis and often broad; pleuræ bare of hairs; pygidium asymmetrical, the uppermost valve unpaired; coxæ not elongate, femora often thickened and mucronate beneath; calypteres closely united to the base of the wing and with a small fringe; cursorial, terrestrial species. Subfam. TACHYDROMINÆ.
- Anal cell and discal cell complete, or if either is incomplete the front coxæ are greatly lengthened and the front legs are raptorial or else the anal angle of the wing is rectangular, intercalary vein usually present thus making four posterior cells, auxiliary vein more or less distinct, third vein often furcate; proboscis often lengthened and palpi often porrect; pygidium with paired upper valves, except in *Hybos*, etc. 2.
2. Anal angle of the wing not projecting, the outline of the wing more or less cuneiform, costa continuing around the hind margin of the wing, anal crossvein acute, perpendicular or rounded, very rarely forming an obtuse angle, sometimes wanting, usually no fold in the wing under the humeral crossvein, no alula, calypteres closely united to the base of the wing, with a straight edge and with a small fringe; proboscis short, never longer than the head, either thick and fleshy or sharp and incurved; arista or style terminal; eyes broadly separated on the front, often pubescent, the face narrower than the front; thorax elongate, not highly arched, not pubescent, mesopleuræ obliquely longer than vertically high; front coxæ always longer than the posterior ones, no apical tibial spurs, empodium usually quite distinct although small; gressorial species. 3.

Anal angle of the wing almost always more or less projecting, often rectangular, rarely the wings uniformly tapering to the base, in which case the high mesopleuræ or thin hind margin of the wing are distinctive, a transverse fold in the wing membrane between the origin of the fourth vein and the humeral crossvein; males often holoptic; proboscis usually rigid; mesopleuræ distinctly higher than long; front coxæ not elongate nor the front legs raptorial, empodium at most microscopically setuliform, usually invisible; flying species

4.

3. *Front legs raptorial, located near the head and distant from the posterior pairs, the front coxæ greatly lengthened, nearly as long as their femora and two or more times as long as the posterior coxæ, the front femora more or less thickened and setulose and setose beneath; palpi minute; antennæ inserted below the middle of the head; body and legs often yellow; neuration often reduced, pedicel of the second and third veins arising nearer the anterior crossvein than to the humeral crossvein*

Subfam. HEMERODROMINÆ.

Legs slender, not raptorial, the front pair not distant from the others, the mesosternum never greatly longer than the prosternum, neither the front coxæ greatly lengthened nor the front femora greatly thickened; antennæ usually above the middle of the head; body often olivaceous black, thorax flattened before scutellum; neuration complete, pedicel of the second and third veins arising nearer the humeral crossvein than to the anterior crossvein, auxiliary vein always distinct

Subfam. CLINOCERATINÆ.

4. *Anal crossvein recurved or abruptly reflexed and confluent with the under side of the anal cell, the anal vein usually represented as an independent fold disjoined from the anal cell, the crossvein perpendicular only in Parathalassius, auxiliary vein strong and always distinct from the first vein, third vein forked or not, if not the metapleuræ setose or the basal cells very small or the anal cell very narrow, always three posterior veins, basal cells long and coextensive, except in the Microphorus group; antennæ obviously three-jointed, except in Hormopeza, the basal joints often more or less setose, the first joint rarely shorter than the second; proboscis often elongate, usually bent back, rarely projecting, palpi often long and hairy, especially toward the base; eyes of the female always broadly separated, fronto-orbitals often present; face quadrate or arched, almost never very narrow; metapleuræ often with bristles; posthumeral and intra-alar usually present, unless all the bristles are secondarily reduced; no ovipositor, the female with two styles; middle tibiæ usually with an apical bristle inside, hind tibiæ often with extensor bristles.*

Subfam. EMPIDINÆ.

Anal crossvein forming a distinct angle, either acute, right or slightly obtuse, with the under side of the anal cell which is continuous with the anal vein, recurved only in Anomalempis, third vein forked only in some Brachystomatinae, often only two posterior veins; base of the antennæ without strong setæ; proboscis rarely longer than the length of the head, often perfect, palpi short, at most with a few setæ toward the tip; face often narrow; no fronto-orbital or intra-alar bristles, posthumeral present only in Trichina and Bicellaria; thorax often large and highly arched, meta-

- pleuræ* always devoid of bristles, sometimes with short pile in front of the spiracle. 5.
5. Anal cell shorter than or about as long as the second basal, its posterior angle obtuse, or the anal crossvein perpendicular to the anal vein, third vein not forked, basal cells moderately long, costa stopping at the fourth vein, auxiliary vein weak and lying close to the first vein; proboscis usually short, rarely porrect; thorax seldom excessively convex. Subfam. OCYDROMIINÆ.
- Anal cell as long as the second basal or longer, its outer angle acute, the anal crossvein never reflexed but closing the anal cell toward the margin of the wing, basal cells typically long; auxiliary vein distinct and separate from the first vein. 6.
6. Discal cell emitting two veins, if three the basal cells are very short, auxiliary vein continuing beyond the middle of the wing, costa stopping at the third or the fourth vein, anal angle of the wing rectangular, alula sometimes present, third vein simple, basal joints of the antennæ connate, the antennæ therefore apparently two-jointed, a long arista usually present; proboscis rigid, projecting forward; eyes of both sexes typically meeting, upper facets largest, a horizontal line on the eye at the level of the antennæ; ocellar triangle prominent and located on the vertex; thorax greatly arched; hind legs usually stout and setose. Subfam. HYBOTINÆ.
- Discal cell emitting three veins, auxiliary vein ending in the costa before the middle of the wing, costa continuing around the entire wing, anal angle of the wing weak or wanting, third vein usually forked; no ocellar prominence; antennæ three-jointed; proboscis short, sharp and incurved; upper facets smallest, but no horizontal differentiating line; thorax comparatively small, the abdomen elongate and in the female apically fimbriate. Subfam. BRACHYSTOMATINÆ.

SUBFAMILY BRACHYSTOMATINÆ

Characters. — Elongate slender, nearly glabrous species of moderately large size. Head globose, eyes bare, with uniform facets, nearly or quite contiguous on the face; antennæ located high up on the head, projecting horizontally, three-jointed; proboscis very short. Thorax much shorter than the abdomen. Legs long and slender, sometimes differing in structure in the two sexes, the femora always slender, the tibiæ of the males sometimes apically swollen or deformed, no tibial spurs. Wings cuneiform and slender, costa encompassing the entire margin, the anal angle not or but little developed, auxiliary vein distinct, first vein ending beyond the middle of the wing, stigma normally present, third vein furcate or simple, the fork extending obliquely to the costa or perpendicularly to the second vein, basal cells very long, discal cell complete, emitting three simple posterior veins, anal cell longer than the basals, its crossvein continuing toward the margin, rounding or acutely closing the anal cell, anal vein strong, usually abruptly ending before the margin, no alula; calypteres minute.

TABLE OF THE GENERA OF THE BRACHYSTOMATINÆ

1. Third vein forked; anal crossvein acutely closing the anal cell; stigma present; palpi broadened 2.
- Third vein simple; anal cell with rounded extremity; eyes widely separated on face and front (female); no stigma; palpi slender and setose, antennæ elongate and with long style (Pl. 5, Fig. 38) . Genus ANOMALEMPIS, nov. gen.

2. *Third joint of the antennæ lengthened and passing insensibly into the style; second vein apically bent to meet the costa perpendicularly; thorax strongly arched; eyes contiguous (Pl. 5, Fig. 41) . . . Genus HOMALOCNEMIS, Philippi.*
Third joint of the antennæ short and conical, ending in a thin arista; second vein rounding into the costa; thorax rather flattened above; eyes separated, narrowly on the face and broadly on the front (Genus BRACHYSTOMA, Meigen). 3.
- 3 *First submarginal cell open; abdomen of ♀ typically ending in a bladder-like vesicle; ♂ legs not deformed (Pl. 1, Fig. 2) . . . Subgenus BRACHYSTOMA, s. str.*
First submarginal cell closed; abdomen ♀ not vesiculate; ♂ legs often deformed; pygidium typically fringed (Pl. 8, Fig. 77) . . . Subgenus BLEPHAROPROCTA, Loew.

1. GENUS BRACHYSTOMA, MEIGEN

Brachystoma, Meigen, Syst. Besch. Vol. 3, p. 12 (1822); Macquart, Hist. Nat. Dipt. Vol. 1, p. 344 (1834); Zetterstedt, Ins. Lapp. p. 557 (1838); Blanchard, Hist. Nat. Ins. Vol. 3, p. 582 (1840); Zetterstedt, Dipt. Sc. Vol. 1, p. 360 (1842); Boitard, Nouv. Man. Vol. 3, p. 321 (1843); Rondani, Dipt. Ital. Prodr. Vol. 1, p. 150 [1856] (*Brachistoma*); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 562 (1857); Schiner, Fauna Austr. Dipt. Vol. 1, p. 117 (1862); Lioy, Atti Inst. Venezia 1864, p. 603 (1864); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 121 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 259 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 247, 262, 263 (1903); Melander, Williston's 3d. Man. p. 224 (1908); Kertész, Cat. Dipt. Vol. 6, p. 1 (1909); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 516 (1910).

Blepharoprocta, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 194 (1862); Coquillett, Proc. U. S. Nat. Mus. Vol. 28, p. 389 (1895); Williston, Manual, p. 74 (1896) (*Blepharoproctus*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 261 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 246, 263 (1903); Melander, Williston's 3d. Man. p. 224 (1908); Kertész, Cat. Dipt. Vol. 6, p. 2 (1909); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 514 (1910).

Heterophlebus, Philippi, Verh. Zoo.-bot. Ges. Wien. Vol. 15, p. 764 (1865).

Characters.—No ocellar prominence, the vertex rounding into the occiput; eyes subcontiguous on the face, distinctly separated above the antennæ, the sides of the front parallel to the ocelli; basal joints of the antennæ together longer than the third which is conical and shorter than the slender terminal arista; proboscis thick, inflexed, palpi small and broad. Thorax short, rather flattened above, the scutellum small, legs close together, no pubescence nor bristles beyond a few microscopic prescutellar dorsocentral hairs and single supraalar and postalar bristles, scutellum with two or more hairs; pleuræ bare but pollinose. Seventh tergite of the female abdomen typically inflated to a large translucent bladder, open apically as a vertical slit, the seventh sternite closing the vesicle below, but in *Blepharoprocta* this segment is compressed and not larger than the preceding and has a more strongly ciliated opening; pygidium small, retracted or exposed, with central filament and two pairs of small narrow lateral valves, sometimes enclosed in a projecting ventral fringe. Legs elongate, slender, femora usually with some setæ beneath, tibiæ and tarsi of males of *Blepharoprocta* sometimes greatly deformed. Wings with reduced anal angle, third vein forked, basal cells large, four posterior cells, anal cell long and acute, no basal bristle on the costa.

The sexual dimorphism of *B. serratula* is most striking. Besides the genital differences, the legs of the male are curiously modified and even its neuration is changed. In this species some of the hairs of the hind margin of the wing are bent forward on the inner surface to form a long curved fringe.

NOMENCLATURE

Type species : *B. vesiculosum*, Fabricius (Pl. I, Fig. 2). Westwood in 1840 designated *longicornis* Meigen as the type, a species which Rondani later made the type of his genus *Trichopeza*, but Blanchard, also in 1840, selected *vesiculosum* as the type of *Brachystoma*, a procedure which has been since followed.

There seems to be no satisfactory distinction between *Brachystoma* and *Blepharoprocta*. The latter group, as exemplified by *binummus*, has the marginal cell closed, the end of the female abdomen not inflated, the male legs distorted and there is a prominent fringe on the pygidium. None of these characters occur in *Brachystoma*. However, in *Robertsonii*, which was described as a *Brachystoma*, the marginal cell is open, but the pygidial fringe is lacking and the abdomen of the female is narrow. In *nigrimana*, which Coquillett considered the type of *Blepharoprocta*, the legs are simple and the pygidial fringe is quite inconspicuous. I have a specimen of *nigrimana* lacking the fork of the third vein in one wing, showing that this character also is unstable. *Serratula* and *binummus* are the female and male respectively of the same species. *Heterophlebus* was proposed by Philippi shortly after the publication of *Blepharoprocta*, and was based on the same character, the closure of the marginal cell.

Geographical distribution.

SUBGENUS BLEPHAROPROCTA, LOEW

1. *B. ambigua*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 764 [1865] Chile.
(*Heterophlebus*).
2. *B. melanogastra*, Philippi, ibidem, Vol. 15, p. 764 [1865] (*Heterophlebus*). Chile.
3. *B. nigrimana*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 194: Cent. 2, n° 17 E. United States.
[1862] (*Brachystoma*); Melander, Trans. Amer. Ent. Soc. Vol. 28,
p. 261 (1902).
4. *B. serratula*, Loew, Berl. Ent. Zeitschr. Vol. 5, p. 319, Vol. 6, p. 194: E. United States.
Cent. 1, n° 23 [1862] (*Brachystoma*); Melander, Trans. Amer. Ent.
Soc. Vol. 28, p. 262 (1902). — Pl. 8, Fig. 77.
binummus, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 193: Cent. 2, n° 16 [1862]
(*Brachystoma*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 261, f. 91, 92
(1902).
5. *B. thoracica*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 764 [1865] Chile.
(*Heterophlebus*).

SUBGENUS BRACHYSTOMA, MEIGEN

6. *B. bicolor*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 130 (1889). Chile.
- *B. distinguendum*, Schiner, Fauna Austr. Dipt. Vol. 1, p. 117 (1862) no description.
7. *B. fuscum*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 763 (1865). Chile.
8. *B. leptidium*, Philippi, ibidem, Vol. 15, p. 762 (1865). Chile.
9. *B. nemorale*, Philippi, ibidem, Vol. 15, p. 764 [1865] (*Heterophlebus*). Chile.
10. *B. nigricorne*, Philippi, ibidem, Vol. 15, p. 763 (1865). Chile.
11. *B. obscuripes*, Loew, Neue Beitr. Dipt. Pt. 4, p. 37 (1856). Sardinia.
12. *B. occidentale*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 260, pl. 8, W. United States.
f. 89 (1902).

13. *B. ? quadricinctum*, Fabricius, Syst. Antl. p. 148 [1805] (*Damalis*); Wiedemann, Auss. Zweifl. Ins. Vol. 1, p. 537 [1828] (*Hybos*); Bezzi, Nova Acta Akad. Naturf. Halle. Vol. 91, p. 314 [1909] (*Syneches*). South America.
14. *B. Robertsonii*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 393 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 260 (1902). Illinois, Tennessee, Ohio.
15. *B. * spinulosum* Loew, Berendt, Organ. Reste Bernstein, Vol. 1, p. 57 (1845) unnamed; Loew, Bernsteinfauna, p. 41 (1850) undescribed; Giebel, Ins. Vorwelt, p. 209 (1856); Meunier, Miscell. Ent. Vol. 7, p. 178 (1899). Baltic Amber. Lower Oligocene.
16. *B. stigmaticum*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 763 (1865). Chile.
17. *B. testaceum*, Philippi, ibidem, Vol. 15, p. 763 (1865). Chile.
18. *B. vesiculosum*, Fabricius, Ent. Syst. Vol. 4, p. 299 [1794] (*Syrphus*); Syst. Antl. p. 200 [1805] (*Baccha*); Meigen, Syst. Besch. Vol. 3, p. 13, pl. 22, f. 8, 9 (1822); Macquart, Hist. Nat. Dipt. Vol. 1, p. 344, pl. 8, f. 5 (1834); Boitard, Man. Ent. Vol. 3, p. 321 (1843); Schiner, Fauna Austr. Dipt. Vol. 1, p. 117 (1862); Girschner, Ent. Nachr. Vol. 20, p. 63, 244 (1894); Mik, Wien, Ent. Zeit. Vol. 16, p. 36, fig. (1897). — **Pl. 1, Fig. 2.**
var. *flavicollis*, Mik, Wien, Ent. Zeit. Vol. 6, p. 103 (1887); Strobl, Mitth. Naturw. Ver. Steiermark, Vol. 29, p. 42 (1893). S. Europe.
19. *B. vittigerum*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 765 [1865] (*Heterophlebus*). Chile.

2. GENUS HOMALOCNEMIS, PHILIPPI

Homalocnemis, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 752 (1865); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 121 (1889); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301 (1909); Kertész, Cat. Dipt. Vol. 6, p. 8 (1909).

Characters. — Species of five or six mm. length; head globose, thorax very strongly gibbous, abdomen slender. Eyes contiguous above the antennæ, separated below; antennæ three-jointed, the third joint long and tapering and merging into the long apical arista; proboscis and palpi small and retracted. Legs slender, the femora not thickened, in the genotype the apex of the tibiæ and the basal joints of the tarsi of the male dilated. Wings dark-colored, stigma strong and long, second vein curving forward at tip to meet the costa, third vein forked, discal cell large, complete, emitting three veins, basal and anal cells long.

Type species: *Homalocnemis nigripennis* Philippi, from South America (**Pl. 5, Fig. 41**). The recently described *Brachystoma adelensis* Miller from New Zealand, apparently belongs here. The full venation is somewhat suggestive of Bombyliidæ but the habits of the New Zealand species, in darting hither and thither over the surface of pools of water, show the Empidine affinities.

Geographical distribution.

1. *H. adelensis*, Miller, Trans. New Zeal. Inst. Vol. 45, p. 203-206, f. 11-14, New Zealand. pl. 1, f. 2 [1913] (*Brachystoma*).
2. *H. nigripennis*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 752, pl. 29, f. 56 (1865). — **Pl. 5, Fig. 41.** Chile.

3. GENUS ANOMALEMPIS, NOV. GEN.

Characters. — Head globose, no ocellar prominence; front (female) occupying about one-sixth the width of the head, slightly widening toward antennæ, face somewhat broader; occiput bristly

with stiff hairs; facets nearly uniform; antennæ porrect, the basal joints minute, together about one-third as long as the tapering third joint which ends in a thickened style three-fourths as long as the third joint; palpi slender and setose, proboscis inflexed, not tapering, as long as antennæ. Thorax arched, about ten hairs in the dorsocentral series, one notopleural, two supra-alar and one intra-alar bristles developed, scutellum quadrisetose. Seventh abdominal segment (female) long and tubular, apically fringed as in *Blepharoprocta*. Legs simple, middle femora with a few flexor setæ, hind tibiæ with extensor setæ. Wings hyaline, costa encompassing hind margin, auxiliary vein extending straight into costa, third vein not forked, discal cell emitting three posterior veins, basal cells long, the anal cell with rounded apex, the anal crossvein extending towards margin but with recurved tip, anal vein beyond crossvein, represented by a fold, anal angle of wing shallowly rounded but evident.

Genotype the following species.

Geographical distribution.

1. *A. tacomæ*, nov. sp. — Pl. 5, Fig. 38 (1).

Washington.

SUBFAMILY HYBOTINÆ

Characters. — Thorax greatly convex, head hemispherical, eyes large, bare, contiguous above the antennæ at least in the male, so as to crowd out the front, the ocelli located on a prominent tubercle situated on the very summit of the head, upper facets larger than the lower, a distinct horizontal line extending across the eyes at the level of the antennæ; proboscis porrect, usually styliform, short in the aberrant Tasmanian genera *Ironomyia* and *Sciadocera*, palpi never broad, sometimes linear and projecting, sometimes short; antennæ small, three-jointed, but the basal joints immovably fused, no strong setæ on the antennæ, third joint more or less elongate oval, arista long, very thin and bare, usually terminal, rarely subdorsal, in *Meghyperus* sometimes replaced by a thick style; no cephalic bristles, a pair of small ocellar hairs. Humeri pronounced, disk of the mesonotum devoid of true bristles, sometimes pilose, sometimes a prescutellar pair of reduced dorsocentrals, two or three notopleural bristles present, scutellum margined with hairs of which the apical two are sometimes bristle-like; pleuræ entirely devoid of hairs. Abdomen comprising eight segments and the pygidium or true ovipositor, the pygidium small and bilaterally constructed in the *Syneches* and *Meghyperus* groups, or usually larger and consisting of opposing upper and lower valves in the *Hybos* group. Hind legs usually large, with their coxæ the strongest pair, their femora incrassate and spinose beneath and longer than their tibiæ; anterior tibiæ and tarsi often furnished with long bristles, hind tibiæ clavate in *Meghyperus* and *Syndyas*; pulvilli large, empodium minute and bristly. Calypteres rather large, separated from the root of the wing and densely fringed. Wings rather broad, the anal angle strongly developed, rectangular, costal margin hairy, costal bristle small, costa continuing to the fourth vein, humeral crossvein well formed, auxiliary vein straight, usually parallel with and close to the first vein and vanishing before it attains the costa, first vein ending beyond the middle of the wing, stigma usually more or less evident, sometimes prominent with the second vein curving down around it, discal cell usually large and elongate, situated

(1) *Anomalempis tacomæ*, nov. sp. — Female. Length 2.5 mm. Black species, occiput subshining, front and face brown pollinose, mouthparts and antennæ black. Mesonotum polished, its hairs black, pleuræ entirely dull pollinose. Abdomen polished, its fine hairs pale. Halteres pale yellow, calypteres and fringe sordid. Wings hyaline, only the faintest indication of a stigma, costal sections 1 : 1 : 0.6 : 0.8 (end of third vein a little beyond wing-tip) : 0.3 : 0.4 : 0.4, underside of discal cell 3 : 2, sections of fifth vein equal.

A single specimen of this curious fly was discovered during August 1917, in Paradise Park on Mt. Rainier, Washington.

in the middle of the wing, emitting two posterior veins of which the anterior is furcate in two of the genera, in the aberrant Tasmanian genera *Ironomyia* and *Sciadocera* there are three posterior veins and the basal cells are small, otherwise the basal cells long, nearly equal in extent as the anterior crossvein is placed well toward the base of the discal cell, anal crossvein never recurved but continuing perpendicularly to the wing axis toward the hind margin, the anal cell, always formed, is thus longer than the second basal and its outer lower angle is acute. A distinct alula is present in *Meghyperus*.

This subfamily is the best circumscribed of all. By the earlier writers it was considered as a distinct family, the Hybotidæ, but during the last half century it has been amalgamated with the Empididæ. In the Hybotinæ the anal crossvein, the chief character of the subfamily, continues more or less parallel with the hind margin so as to elongate the anal cell, but in *Meghyperus* it is so curved as to meet the anal vein almost at a right angle.

Meghyperus forms an aberrant genus in the Hybotinæ. The presence of a strong alula, the separation of the auxiliary vein, the forked fourth vein, the broad front of the female and the lack of a long arista, are all weighty characters at variance with the other genera and suggestive of the genus *Prorates* Melander, which is discussed at the conclusion of this fascicle as being removed to the Bombyliidæ.

TABLE OF THE GENERA OF THE HYBOTINÆ

- | | |
|---|----------------------------|
| 1. Basal cells long, discal cell present and emitting 2 posterior veins; proboscis projecting forward | 2. |
| Basal cells short, 3 posterior veins, discal cell present or open; arista long and filiform; femora simple; proboscis short; wings broad, costa convex | 12. |
| 2. Antennæ with a long filiform arista; eyes contiguous above the antennæ in both sexes; hind femora often swollen; discal cell emitting two simple posterior veins, auxiliary vein very close to the first vein, no alula | 3. |
| Antennæ with a style, eyes of ♀ broadly separated on the front; legs without bristles, hind femora slender; fourth vein forked, auxiliary vein distinctly separated from the first vein which passes through the stigma, alula present; pygidium with lateral valves (Pl. 5, Fig. 40) | Genus MEGHYPERUS, Loew. |
| 3. Pedicel of the second and third veins long, arising before the middle of the basal cells; pygidium with lateral valves; scutellum with several marginal bristles or hairs | 4. |
| Pedicel of the second and third veins short, arising beyond the middle of the basal cells; pygidium with dorsal and ventral valves; scutellum with two or but few marginal bristles. | 7. |
| 4. Hind femora slender, not thicker nor longer than their tibiæ, elongate and not armed beneath with setæ or tubercles; arista usually subapical; middle tarsi ♂ sometimes deformed; dorsocentral, scutellar and tibial bristles undeveloped (Pl. 1, Fig. 7) | Genus PARAHYBOS, Kertész. |
| Hind femora more or less swollen, thicker and longer than their tibiæ, and variously armed beneath with setæ, spines or tubercles (Genus SYNECHES, Walker) | 5. |
| 5. Third and fourth veins parallel or diverging; color of the body usually dark or black and the wings sometimes spotted (Pl. 1, Fig. 4) | Subgenus SYNECHES, Walker. |
| Third and fourth veins converging, the first posterior cell narrower at its apex than opposite the posterior crossvein; color often yellow and wings not spotted | 6. |

6. *Hind femora setose beneath but not armed with spinose tubercles* . . . Subgenus EPICEIA, Walker.
Hind femora ♂ armed beneath with tubercles which bear spines or strong setæ, hind tibiæ ♂ curved and tuberculate (Pl. I, Fig. 6) . Subgenus HARPAMERUS, Bigot.
7. *Vein between the first and second basal cells distinct, discal cell never much shorter than the second posterior cell, usually much longer; tibiæ not clavate* 8.
Vein between the first and second basal cells very weak, the first basal broader than the second, discal cell much shorter than the second posterior; hind tibiæ usually clavate (Pl. 5, Fig. 39) Genus SYNDYAS, Loew.
8. *Hind femora not thickened and entirely unarmed; arista stiff and shorter than the broadly conical third joint; first and second veins ending close to the tip of the wing; proboscis horizontally porrect and slender (Pl. 5, Fig. 42)* Genus ACARTERUS, Loew.
Hind femora more or less thickened and armed beneath with spinous bristles; arista hair-like and much longer than the third joint of the antennæ 9.
9. *Third and fourth veins parallel or diverging; eyes separated on the face; proboscis slender, projecting, about as long as the head, palpi prominent; mesonotum and pleuræ usually pollinose, the pubescence of the thorax sparse, usually a pair each of dorsocentral and scutellar bristles; usually no ovipositor; hind tarsi with minute black thorns beneath, hind femora not extraordinarily thickened (Pl. I, Fig. 5)* . Genus HYBOS, Meigen.
Third and fourth veins somewhat convergent, the first posterior cell narrowed; eyes contiguous or nearly so beneath the antennæ in both sexes; no dorsocentral bristles; last segments of ♀ abdomen lengthened forming an ovipositor 10.
10. *Third joint of the antennæ elongate ovate; tibiæ without tooth; proboscis projecting forward; head not unusually small; hind femora often tuberculate and always greatly swollen* 11.
Third joint of the antennæ semicircular, the convex side up; front tibiæ with a strong subbasal flexor tooth; proboscis perpendicular (abnormal?) palpi small; shining metallic species with very small head . Genus CERATHYBOS, Bezzi.
11. *Body covered with tomentum, disc of the mesonotum bare of pile; proboscis about as long as the head, slender for piercing, palpi elongate (Pl. 5, Fig. 45)* Genus LACTISTOMYIA, Melander.
Body shining, often metallic, devoid of tomentum, the mesonotum more or less densely pilose; proboscis short, not constructed for piercing, the labellæ when appressed forming a compressed lamella, palpi short (Pl. I, Fig. 3) Genus EUHYBOS, Coquillett.
12. *Second and third veins approximate and parallel, a heavy stigma present beyond end of first vein, discal cell complete, anal cell longer than basals; thorax slightly arched, its bristles weak (Pl. 8, Fig. 86)* . Genus IRONOMYIA, White.
Second and third veins diverging, no stigma, discal cell absent, anal cell shorter than basals; eyes of female widely separated; thorax greatly arched, its bristles pronounced Genus SCIADOCERA, White.

I. GENUS HYBOS, MEIGEN

Hybos, Meigen, Illiger's Mag. Ins. Vol. 2, p. 269 (1803); Syst. Besch. Vol. 2, p. 261 (1820); Macquart, Mem. Soc. Sc. Lille, 1823, p. 143 (1823); Dipt. N. France, Vol. 3, p. 147 (1827); Hist. Nat. Dipt. Vol. 1, p. 318 (1834); Curtis, Brit. Ent. Vol. 8, p. 661 (1837); Zetterstedt, Fauna Ins. Lappon, p. 535 (1838); Westwood, Gen. Syn. p. 133 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 233 (1842); Boitard, Man. Ent. Vol. 3, p. 316 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 120 (1851); Rondani, Dipt. Ital. Vol. 1, p. 153 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 559 (1857); Schiner, Fauna Austr. Dipt. Vol. 1, p. 77 (1862); Lioy, Atti Inst. Venet. 1864, p. 719 (1864); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 115 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390 (1895); Wheeler & Melander, Biol. Centr.-Amer. Dipt. Suppl. p. 372 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 245 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 251, 259 (1903); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 324 (1904); Vol. 3, p. 425 (1905); Melander, Williston's Man. N. Amer. Dipt. 3 ed. p. 224 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301, 305 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 553 (1910); Lundbeck, Dipt. Danica, Vol. 3, p. 8 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 42, 46 (1910); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 336 (1920).

Acromyia, Bonelli, in Latreille (not Leach, Lioy or Coquillett), Gen. Crust. Ins. Vol. 4, p. 305 (1809); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 329 (1904).

Noeza, Meigen, Nouv. Classif. Mouches, p. 27 (1800); Hendel, Verh. Zool.-bot. Gez. Wien, Vol. 58, p. 56 (1908); Kertész, Cat. Dipt. Vol. 6, p. 3 (1909); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 453 (1912); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 576 (1910).

Characters. — Black-colored species measuring four to five millimeters, with downward curved abdomen, light pollinose coating and long, spinose hind femora. Head rather globular, the eyes large, meeting above the antennæ up to the prominent ocellar triangle which is placed on the summit of the vertex, below the antennæ the eyes are approximated but leave a distinct shortened face; no cheeks; proboscis slender, projecting forward as far as the length of the head, the palpi long and slender; antennæ short, located below the middle of the head, the basal joints fused, the third joint oval and with a long slender terminal arista; no cephalic bristles. Thorax highly arched, less convex before the scutellum, prothorax quadrangular, appearing as a neck; rows of hair-like acrostichal and dorsocentral bristles, humeri with hairs, two or three notopleural, two scutellar and one small postalar bristles present; pleuræ pollinose but bare of hairs. Abdomen cylindrical, the pygidium more or less globose and large, asymmetrical, with dorsal and ventral convex distorted plates; eighth segment of the female normally retracted giving a blunt termination to the abdomen. Anterior legs hairy and bristly, especially in the male, hind legs elongate, the femora rather clavate and spinose beneath, hind tibiæ shorter than their femora, devoid of spurs, anterior tibiæ usually with apical bristles. Wings with parallel margins, anal angle prominent and rectangular, veins strong, costal margin closely short-hairy, very rarely spinose, second vein ending near the tip of the wing, stigma weak, pedicel of the second and third veins arising beyond the middle of the second basal cell, third and fourth veins both curving backward, the first posterior cell not narrowed in the margin, discal cell narrow and long, complete, sending two simple posterior veins to the margin, basal cells long and equal, the anal crossvein forming an acute angle with the anal vein, no alula. Halteres most often light colored.

Type species : *H. grossipes* Linnæus. Meigen's first species was *funbris*, which is synonymous with *grossipes*. Curtis, in his British Entomology (1837), designated this as the type.

Hendel would overthrow the classic name *Hybos* in favor of the doubtful name *Noeza*, and in this course unfortunately he has been followed by Kertész, Bezzi and Coquillett. This opens up the question of the general acceptance of the abandoned names of Meigen's 1800 paper, which have been contested by many zoologists. As in this early paper Meigen mentioned no species by name, thus disregarding binomial nomenclature, as identification through his brief and broadly applicable descriptions is uncertain, and as it is impossible to determine the genotypes from the data in this paper alone, it appears that nothing is to be gained by resurrecting the names of 1800 but much is to be lost by the wholesale replacement of scores of generic names in common usage by names of questionable application. An extended discussion to this effect has already been penned by the writer (see, Melander : *Psyche*, Vol. 17, p. 41-47 (1910). It is unfortunate that when the International Commission on Zoological Nomenclature had this specific case under consideration it decided in Opinion 28 (Smithsonian Publication 1989, p. 66, Oct. 1910) only that Meigen's 1800 paper had actually been published. However, in Opinion 46, regarding the status of genera for which no species was distinctly named in the original publication, the Commission has rendered its opinion that a genus becomes a *genus dubium* when it is impossible to recognize any one of the original species for the genotype from the original description. It is better to let these questionable genera remain doubtful than to attempt at this late date to fix their genotypes, with the consequent overthrow of well known names of such dominant genera as *Rhamphomyia*, *Platypalpus*, *Hybos* and *Clinocera*. Therefore throughout this fascicle Meigen's « *Erstlingsarbeit* » will not be seriously considered.

The species of *Hybos* are æstival, but occur among the shrubbery of woods. There are relatively but few species, one only in the United States and three in Europe.

TABLE OF THE NEW WORLD SPECIES OF HYBOS

- | | |
|---|------------------------------------|
| 1. Costa nearly straight, if bowed the costal cell is broadened,
no costal hooks | 2. |
| Costa rounded, parallel with first vein and bearing strong curved
spines. | H. SPINICOSTA, Wheeler & Melander. |
| 2. Front metatarsi longer than or nearly as long as their tibiæ,
hind femora not spinose, hind metatarsi not spinulose, middle
tibiæ with very long setæ. | 3. |
| Front metatarsi evidently shorter than their tibiæ, hind femora
with spines, hind metatarsi with small black thorns below
(as far as known). | 5. |
| 3. Coxæ and legs wholly yellowish; third antennal joint elongate
oval; no dorsocentrals. | H. XANTHOPODUS, nov. sp. |
| Coxæ and legs almost wholly black; two dorsocentrals | 4. |
| 4. Two intermediate flexor setæ on middle tibiæ; third antennal
joint subulate; halteres whitish. | H. TYPICUS, Wheeler & Melander. |
| One flexor seta at middle of middle tibiæ; third antennal joint
ovate; halteres piceous. | H. ECTORUS, nov. sp. |
| 5. Thorax more or less dusted; eyes separated on the face. | 6. |
| Thorax shining; eyes contiguous or subcontiguous below
antennæ; halteres dark | 11. |
| 6. Halteres whitish; dorsocentrals present. | 7. |
| Halteres blackish; base of hind tibiæ yellowish; no dorso-
centrals. | H. LURIDUS, Bezzi. |

7. Dorsocentrals strong and black; setæ of middle tibiæ very long 8.
 Dorsocentrals weak and pale; setæ of middle tibiæ short, none
 on flexor side (*H. reversus* Walker) 10.
8. Anterior femora, hind knees, middle tibiæ and posterior tarsi
 luteous. 9.
 Femora black, tibiæ and tarsi yellowish; wings subhyaline . . . *H. HALTERALIS*, Bezzi.
9. Wings brown; ten spines in anterior row under hind femora. *H. SCIAPTERUS*, nov. sp.
 Wings hyaline; seven or eight spines in anterior row under
 hind femora *H. CONIATUS*, nov. sp.
10. Wings of male brownish gray on apical two-thirds . . . *H. REVERSUS*, Walker, s. str.
 Wings of both sexes grayish hyaline except for the stigma. . . var. *SLOSSONÆ*, Coquillett.
11. Legs black, only the tarsi yellow. *H. MELLIPES*, Wheeler & Melander.
 Knees and base of hind tibiæ yellowish. *H. NEOTROPICUS*, Bezzi.

Geographical distribution.

1. *H. apicis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 12 (1913); Fauna Brit. Burma.
 Ind. Dipt. Vol. 1, p. 340, f. 26, 27 (1920).
2. *H. auripes*, Brunetti, Rec. Indian Mus. Vol. 9, p. 14 (1913); Fauna Brit. India.
 Ind. Dipt. Vol. 1, p. 341 (1920).
3. *H. Bezzi*, Kertész, Termes. Fuzet. Vol. 22, p. 175 (1899); Bezzi, Ann. New Guinea.
 Mus. Hungar. Vol. 2, p. 328 (1904).
4. *H. bisetosus*, Bezzi, ibidem, Vol. 2, p. 324 (1904), Vol. 10, p. 454 [1912] East Indies.
 (*Noesa*); Suppl. Ent. Berlin, Vol. 3, p. 67 [1914] (*Noesa*); Brunetti,
 Fauna Brit. Ind. Dipt. Vol. 1, p. 338 (1920).
5. *H. brachialis*, Rondani, Ann. Mus. Stor. Nat. Genova, Vol. 7, p. 446 Borneo.
 (1875); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 326, note (1904).
6. *H. brachystigma*, Bezzi, ibidem, Vol. 2, p. 327 (1904). New South Wales.
7. *H. brunnipes*, Brunetti, Rec. Indian Mus. Vol. 9, p. 12 (1913); Fauna India.
 Brit. Ind. Dipt. Vol. 1, p. 343 (1920).
- , *H. brunnipes*, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 260 (1829) no
 description.
8. *H. coniatulus*, nov. sp. (1). Costa Rica.
9. *H. culiciformis*, Fabricius, Syst. Ent. p. 796 [1775] (*Asilus*); Fabricius, Europe.
 Spec. Ins. Vol. 2, p. 466 [1781] (*Asilus*); Fabricius, Mant. Ins.
 Vol. 2, p. 361 [1787] (*Asilus culiciformis*); Olivier, Encycl. Méth.
 Ins. Vol. 4, p. 270 [1789] (*Asilus*); Fabricius, Ent. Syst. Vol. 4,
 p. 389 [1794] (*Asilus*); Schrank, Fauna Boica, Vol. 3, p. 161 [1803]
 (*Asilus*); Fabricius, Syst. Antl. p. 172 [1805] (*Dasygogon*); Schiner,
 Fauna Austr. Dipt. Vol. 1, p. 78 (1862); Strobl, Mitteil. Naturw.
 Ver. Steiermark, Graz, Vol. 29, p. 44 (1892); Lundbeck, Dipt. Dan.
 Vol. 3, p. 15, 17 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 46
 (1910); Carter, Ent. Mag. Vol. 47, p. 161 (1911), Vol. 48, p. 59
 (1912); Frey, Act. Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 8 (1913).
funebri, Fallen (not Meigen), Empid. Suec. var. p. 5 (1815).
infuscatus, Zetterstedt, Dipt. Scand. Vol. 1, p. 234 (1842), Vol. 8, p. 2993
 (1849); Wahlgren, Ent. Tidskr. Vol. 31, p. 46 (1910).

(1) ***Hybos coniatulus***, nov. sp. — Very close to *sciapterus*, differing as follows: Length 4 mm.; third antennal joint orbicular, arista three and one-half times antennal length; fourth abdominal segment with dorsal patch of dust in place of the band; hind femora much more slender, usually with eight spines in anterior row beneath; pygidial fringes usually less pronounced; wings clear hyaline, stigma weak; often the flexor seta at basal third of middle tibia is quite long.

Six males, nine females, La Suiza de Turrialba, Costa Rica, Pablo Schild, collector.

- rufitarsis*, Zetterstedt, Dipt. Scand. Vol. 8, p. 2994 (1849); Lundbeck, Dipt. Dan. Vol. 3, p. 18 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 46 (1910).
- vitripennis*, Meigen, Syst. Besch. Vol. 2, p. 348 (1820); Macquart, Dipt. N. France, Vol. 3, p. 149 (1827); Hist. Nat. Dipt. Vol. 1, p. 319 (1834); Curtis, Brit. Ent. Vol. 8, p. 661 (1837); Zetterstedt, Fauna Ins. Lappon, p. 535 (1838); Dipt. Scand. Vol. 1, p. 234 (1842); Boitard, Man. Ent. Vol. 3, p. 316 (1843); Zetterstedt, Dipt. Scand. Vol. 8, p. 2994 (1849); Walker, List. Dipt. Brit. Mus. Vol. 3, p. 485 (1849); Dahlbom, Svenska Vet. Akad. Handl. p. 160 (1851); Scholz, Zeitsch. Ent. Breslau, Vol. 5 (17), p. 48 (1851); Walker, Ins. Brit. Dipt. Vol. 1, p. 121 (1851); Zetterstedt, Dipt. Scand. Vol. 11, p. 4267 (1852); Vol. 13, p. 4978 (1859).
10. *H. discoidalis*, Meijere, Tijdsch. v. Ent. Vol. 56, Suppl. p. 66 (1914). Java.
11. *H. ectorus*, nov. sp. (1). Costa Rica.
12. *H. *exilis*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 91, 109, pl. 7, f. 8, 9 (1908). Baltic Amber.
13. *H. femoratus*, Mueller, Zool. Dan. Prodr. p. 181 [1776] (*Asilus*); Walker, Ins. Brit. Dipt. Vol. 1, p. 121 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 78 (1862); Giard, Traité Ent. Vol. 3, p. 992, pl. 108, f. 6 (1885); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 44 (1892); Becker, Mitteil. Mus. Naturk. Berlin, Vol. 2, p. 47 (1902); Czizek, Zeitschr. Mähr. Landesmus. Brünn, Vol. 7, p. 165 (1907); Lundbeck, Dipt. Dan. Vol. 3, p. 13 (1910); Wahlgren, Ent. Tidskrift, Vol. 31, p. 46 (1910); Carter, Ent. Mag. Vol. 48, p. 59 (1912); Frey, Acta Soc. Sc. Fenn. Vol. 37 (3), p. 7 (1913). Europe, Egypt.
- flavipes*, Meigen, Klassif. Besch. Eur. Zweifl. Ins. Vol. 1, p. 241 (1804); Fabricius, Syst. Antl. p. 145 (1805); Fallen, Empid. Suec. p. 5 (1815); Meigen, Syst. Besch. Vol. 2, p. 348, pl. 21, f. 20 (1820); Macquart, Mém. Soc. Sc. Lille, p. 145 (1823); Dipt. N. France, Vol. 3, p. 149 (1827); Hist. Nat. Dipt. Vol. 1, p. 319, pl. 7, f. 13 (1834); Zetterstedt, Fauna Ins. Lappon, p. 535 (1834); Curtis, Brit. Ent. Vol. 8, p. 661 (1837); Zetterstedt, Dipt. Scand. Vol. 1, p. 235 (1842); Boitard, Man. Ent. Vol. 3, p. 316 (1843); Gimmerthal, Bull. Soc. Natur. Moscou, Vol. 20 (2), p. 163 (1847); Walker, List. Dipt. Brit. Mus. Vol. 3, p. 485 (1849); Zetterstedt, Dipt. Scan. Vol. 13, p. 4978 (1859); Pipping, Not. Sällsk. Fenn. Förh. Vol. 4, p. 114, (1858); Bonsdorff, Finl. Tvåv. Ins. Dipt. p. 142 (1861); Siebke, Nyt Mag. Naturvid. Vol. 14, p. 380, 384, 399 (1866).
- var. *fumipennis*, Meigen, Syst. Besch. Vol. 2, p. 349 (1820); Ahrens & Germar, Fauna, Ins. Eur. Pt. 12, p. 25 (1829); Curtis, Brit. Ent. Vol. 8, p. 661 (1837); Walker, List. Dipt. Brit. Mus. Vol. 3, p. 486 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (17) p. 48 (1851); Walker, Ins. Brit. Dipt. Vol. 1, p. 121 (1851); Pipping, Not. Sällsk. Fenn. Förh. Vol. 4, p. 114 (1858); Bonsdorff, Finl. tvåv. Ins. Dipt. p. 142 (1861); Schiner, Fauna Austr. Dipt. Vol. 1, p. 78 (1862); Neuhaus, Dipt. March. p. 68 (1886); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 44 (1892); Czizek, Zeitschr. Mähr. Landesmus. Brünn, Vol. 7, p. 165 (1907); Wahlgren, Ent. Tidskr. Vol. 31, p. 46 (1910); Kuntze, Deutsche Ent. Zeitschr. p. 548 (1913). Europe.

(1) *Hybos ectorus*, nov. sp. — Male. Length 4 mm. Third antennal joint ovate, one and three-fourths times long as wide, arista three times antennal length; upper facets enlarged. Thorax moderately dusted with brown, leaving a pair of short vittæ and a rounded side spot shining, one pair of dorsocentrals large, apical scutellars long, pleuræ cinereous. Abdomen dusted with brown, leaving the hind margin of the last three segments shining; hairs sparse and yellow; pygidium not fimbriate, the upper valve deeply cleft, apically ending in two triangular processes of which the right one is smaller and narrower, lower valve with spoon-like termination, intermediate valve, on right side, large and bearing a flattened claw which fits into the cleft of the upper valve. Legs black, anterior coxæ and base of hind coxæ cinereous, front metatarsi slender, four-fifths as long as tibiæ, middle tibiæ with a long seta at middle of flexor face, at basal fifth and two-fifths of extensor face, hind femora rather slender, hairs black becoming longer and yellow below, a dorsal bristle before knee, six spinous bristles in lower anterior row, ventral denticles arising from minute tubercles, geniculation of hind tibiæ brown, no thorns on metatarsal sole. Knob of halteres brown, wings gray-hyaline, stigma weak, sections of fifth vein 2 : 1.

Female. Dust forming broad triangles on abdominal segments.

Eight males, eleven females, La Suiza de Turrialba, Costa Rica, Pablo Schild, collector.

- ? *rufitarsis*, Roser, Correspondenzbl. Landw. Var. Württemb. Stuttgart, Vol. 1, p. 53 (1840).
14. *H. flavipes*, Brunetti, Rec. Indian Mus. Vol. 9, p. 14 (1913); Fauna Brit. Ind. Dipt. Vol. 1, p. 342 (1920). India.
15. *H. gagatinus*, Bigot, Ann. Soc. Ent. France (6) Vol. 9, p. 127 (1889); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 326, note (1904); Brunetti, Rec. Indian Mus. Vol. 9, p. 15 (1913); Fauna, Brit. Ind. Dipt. Vol. 1, p. 339, pl. 4, f. 6 (1920). India.
16. *H. geniculatus*, van der Wulp, Termész. Füzet. Vol. 20, p. 137 (1897); Tijdschr. v. Ent. Vol. 42, p. 49 (1899); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 326 (1904); Meijere, Tijdschr. v. Ent. Vol. 54, p. 322 (1911); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 454 [1912] (*Noeza*); Suppl. Ent. Berlin, Vol. 3, p. 67 [1914] (*Noeza*); Meijere, Tijdschr. v. Ent. Vol. 56, Suppl. p. 68 (1914); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 340 (1920). East Indies, Ceylon. Java.
17. *H. grossipes*, Linnaeus, Syst. Nat. Vol. 12, p. 988 [1767] (*Musca*); Gmelin, Syst. Nat. Vol. 5, p. 2878 [1790] (*Musca*); Haliday, Stettin. Ent. Zeit. Vol. 12, p. 136 (1851); Walker, Ins. Brit. Vol. 1, p. 120, pl. 5, f. 1 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 78 (1862); Neuhaus, Dipt. March. p. 68 (1886); Lundbeck, Dipt. Dan. Vol. 3 p. 12 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 46, f. 2 (1910); Carter, Ent. Mag. Vol. 48, p. 59 (1912); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 7 (1913). Europe.
- asiliformis*, Bonelli, in Latreille, Gen. Crust. Ins. Vol. 4, p. 305 [1809] (*Acromyia*) no description; Nouv. Dict. Hist. Nat. 2^e éd. (1818) no description; Bonelli, in Macquart, Dipt. N. Fr. Vol. 3, p. 148 [1827] (*Acromyia*) no description.
- claripennis*, Strobl, Mitth. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 43 (1892); Lundbeck, Dipt. Dan. Vol. 3, p. 18 (1910).
- clavipes*, Fabricius, Ent. Syst. Vol. 4, p. 403 [1794] (*Empis*); Syst. Antl. p. 138 [1805] (*Empis*).
- culiciformis*, Gmelin, Syst. Nat. Vol. 5, p. 2900 [1790] (*Asilus*).
- funebria*, Meigen, Klassif. Besch. Eur. Zweifl. Ins. Vol. 1, p. 240 (1804); Fabricius, Syst. Antl. p. 145 (1805); Latreille, Gen. Crust. Ins. Vol. 4, p. 305 (1809); Fallen, Empid. Suec. Pt. 5, p. 5 (1815); Meigen, Syst. Besch. Vol. 2, p. 347 (1820); Macquart, Mem. Soc. Sc. Lille, p. 145 (1823); Dipt. N. France, Vol. 3, p. 148, pl. 4, f. 6 (1827); Hist. Nat. Dipt. Vol. 1, p. 318 (1834); Curtis, Brit. Ent. Vol. 8, p. 661 (1837); Zetterstedt, Fauna Ins. Lappon. p. 535 (1838); Dipt. Scand. Vol. 1, p. 234 (1842); Boitard, Man. Ent. Vol. 3, p. 316 (1843); Zetterstedt, Dipt. Scand. Vol. 8, p. 2993 (1849); Walker, List. Dipt. Brit. Mus. Vol. 3, p. 485 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (17) p. 48 (1851); Zetterstedt, Dipt. Scand. Vol. 11, p. 4267 (1852); Pipping, Not. Sällsk. Fenn. Förh. Vol. 4, p. 114 (1858); Zetterstedt, Dipt. Scand. Vol. 13, p. 4977 (1859); Bonsdorff, Finl. tvåv. Ins. Vol. 1, p. 142 (1861); Siebke, Nyt Mag. Naturvid. Vol. 14, p. 379 (1866); Leunis, Syn. Zool. Vol. 2, p. 401 (1886).
- pilipes*, Meigen, Syst. Besch. Vol. 2, p. 349 (1820); Curtis, Brit. Ent. Vol. 8, p. 661 (1837); Walker, List. Dipt. Brit. Mus. Vol. 3, p. 486 (1849); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 43 (1893); Lundbeck, Dipt. Dan. Vol. 3, p. 18 (1910).
- vitripennis*, of authors
Pipping, Not. Sällsk. Fenn. Förh. Vol. 4, p. 114 (1858); Bonsdorff, Finl. tvåv. Ins. Vol. 1, p. 142 (1861); Siebke, Nyt Mag. Naturvid. Vol. 14, p. 379, 398 (1866).
18. *H. halteralis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 310 (1909). Bolivia.
- *H. leachianus*, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 260 (1829) no description.
19. *H. luridus*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 319 (1909). Bolivia.

20. *H. major*, Bezzi, Ann. Mus. Hungar, Vol. 10, p. 454 [1912] (*Noeza*); Formosa.
Suppl. Entom. Berlin, Vol. 3, p. 66 [1914] (*Noeza*); Meijere, Tijdschr.
v. Ent. Vol. 56, Suppl. p. 67 (1914).
- *H. marshamianus*, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 260 (1829) no
description.
21. *H. mellipes*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, p. 373 Mexico.
(1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 247, pl. 7, f. 78
(1902); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 305 (1909).
22. *H. neotropicus*, Bezzi, Ann. Mus. Hungar, Vol. 3, p. 426 (1905); Nova Bolivia, Peru.
Acta Akad. Naturf. Halle, Vol. 91, p. 310 (1909);
- *H. nervosus*, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 260 (1829) no des-
cription.
23. *H. niger*, Brunetti, Rec. Indian Mus. Vol. 9, p. 12 (1913); Fauna Brit. India.
Ind. Dipt. Vol. 1, p. 340 (1920).
24. *H. nigronitidus*, Brunetti, Rec. Indian Mus. Vol. 9, p. 11 (1913); Fauna India.
Brit. Ind. Dipt. Vol. 1, p. 342 (1920).
25. *H. nitens*, Brunetti, Rec. Indian Mus. Vol. 9, p. 13 (1913); Fauna Brit. India.
Ind. Dipt. Vol. 1, p. 341 (1920).
26. *H. pallipes*, Meijere, Tijdschr. v. Ent. Vol. 54, p. 323 (1911); Bezzi, Java.
Suppl. Ent. Berlin, Vol. 3, p. 67 [1914] (*Noeza*); Meijere, Tijdschr.
v. Ent. Vol. 56, Suppl. p. 68 (1914).
27. *H. papuanus*, Kertész, Termesz. Fuzet. Vol. 22, p. 175, f. 1 (1899); van New Guinea.
der Wulp, Tijdschr. v. Ent. Vol. 47, p. 49 (1899); Bezzi, Ann. Mus.
Hungar, Vol. 2, p. 328 (1904); ibidem, Vol. 10, p. 454 (1912) (?).
28. *H. plumicornis*, Bezzi, Suppl. Ent. Berlin, Vol. 3, p. 67 [1914] (*Noeza*). Formosa.
29. *H. pollinosus*, Bezzi, Ann. Mus. Hungar, Vol. 2, p. 326 (1904). Australia.
30. *H. reversus*, Walker, List. Dipt. Brit. Mus. Vol. 3, p. 487 (1849); Osten- North America.
Sacken, Cat. Dipt. N. Amer. p. 240 (1878); Coquillett, Proc. U. S.
Nat. Mus. Vol. 18, p. 437 (1896); Melander, Trans. Amer. Ent.
Soc. Vol. 28, p. 248 (1902). — **Pl. I, Fig. 5.**
var. *Slossonæ*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 437 (1896); Melander, E. United States.
Trans. Amer. Ent. Soc. Vol. 28, p. 247 (1902).
31. *H. sciapterus*, nov. sp. (1). Costa Rica.
32. *H. setosus*, Meijere, Tijdschr. v. Ent. Vol. 54, p. 324 (1911); Bezzi, Suppl. East Indies.
Ent. Berlin, Vol. 3, p. 66 [1914] (*Noeza*); Meijere, Tijdschr. v. Ent.
Vol. 56, Suppl. p. 68 (1914).
33. *H. spinicosta*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, Mexico.
p. 374 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 246,
f. 77 (1902); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 304
(1909).
34. *H. striatellus*, Villeneuve, Feuille Jeun. Natur. Paris, Vol. 43, p. 111 (1913). France.

(1) ***Hybos sciapterus***, nov. sp. — Male. Length 5 mm. Third antennal joint short oval, arista three times antennal length; upper facets slightly enlarged; occiput cinereous. Mesonotum coated with yellow dust leaving three rounded shining spaces on each side, dorsocentral and distant apical scutellars strong; pleuræ whitish pruinose. Abdomen with light marks of yellow pollen, forming dorsal spots on segments two and three, and basal bands on four following segments; pygidium with fringes of conspicuous black hair. Coxæ black, anterior femora luteous, with a dark streak above near base, front femora with six long fine setæ below, front tibiæ and tarsi jet black, the metatarsus three-quarters length of the tibia, hind femora robust, ten black spinous bristles forming anterior flexor row, hairs yellow, longer below, giving the lower posterior face a ciliate appearance, flexor denticles arising from small tubercles, hind knees broadly luteous, hind tibiæ brownish except the lighter ends, sole of hind tarsi with black denticles, middle tibiæ with very long black setæ, one below knee, one at basal third, one at middle within and one at apex. Wings large of strong brown color, veins black, sections of fourth vein 2 : 1.

Holotype, La Suiza de Turrialba, Costa Rica, Pablo Schild, collector.

35. *H. sydneyensis*, Schiner, Novara Reise, Dipt. p. 203 (1868); Bezzi, Ann. Mus. Hungar, Vol. 2, p. 327 (1904). N. S. Wales.
36. *H. tenuipes*, Brunetti, Rec. Indian Mus. Vol. 9, p. p. 13 (1913); Fauna India. Brit. Ind. Dipt. Vol. 1, p. 338, pl. 4, f. 7, 8 (1920).
37. *H.* tenuis*, Meunier, Ann. Sc. Nat. (Zool.), Vol. 7, p. 91, 109, pl. 7, f. 6, 7 (1908). Baltic Amber.
38. *H. tibialis*, Bezzi, Ann. Mus. Hungar, Vol. 10, p. 455 [1913] (*Noesa*); Suppl. Ent. Berlin, Vol. 3, p. 67 [1914] (*Noesa*). Formosa.
39. *H. typicus*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, p. 373 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 246 (1902); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 305 (1909). Mexico.
40. *H. vagans*, Loew, Jenaische Zeitschr. Ges. Naturw. Jena, Vol. 43, p. 417 (1874). Persia.
41. *H. xanthopodus*, nov. sp. (1). Costa Rica.

4. GENUS EUHYBOS, COQUILLETT

Euhybos, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390, 437 (1896); Melander, Trans. Amer. Soc. Vol. 28, p. 248 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 250, 259, 264 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 541 (1910); Bezzi, Ann. Mus. Hungar, Vol. 10, p. 456 (1912).

Characters. — Hunchbacked, shining black, pilose species with strong, spinose hind femora, contiguous eyes, long ovipositor and reduced mouthparts. Head globular, largely composed of the eyes, the occiput broadly conical and hairy but not bristly, ocellar prominence on the summit of the head, no front, face or cheeks, due to the large eyes, rarely, however, a small narrowly triangular subantennal space representing the face, sometimes continued as a line to the oral margin, antennal incision of the eyes small, uppermost facets enlarged, a horizontal line extending through the middle of the eyes; antennæ three-jointed but the basal joints connate, the second joint with a circle of small hairs, the third joint elongate oval or subulate, two to three times as long as broad, the terminal arista very slender, thread-like, bare and averaging twice the antennal length; proboscis not half as long as the head, extending forward, when closed the two valves of the labella come together as a thin vertical lamella, palpi minute, scarcely projecting, each with a preapical hair. Thorax greatly convex, humeri prominent, prothorax quadrate when viewed from above, more or less densely and long pilose, typically no bristles, except two notopleural and a pair of apical scutellars; pleuræ bare, the mesopleuræ and sternopleuræ shining, otherwise the pleuræ lightly coated with pollen. Abdomen elongate, cylindrical, devoid of bristles but with long loose pale hairs toward base; pygidium terminal, rather large, ovoid in outline, comprising an upper and a lower opposing convex valve, each of which terminates in a complicated manner, between these a small elliptical plate on the left side and a delicate process on the right, an upcurved terminal filament, which is flattened, ribbon-like, hairy, and usually is long and attenuated

(1) **Hybos xanthopodus**, nov. sp. — Female. Length 4 mm. Third antennal joint three times as long as wide, arista one and three-quarters times antennal length; upper facets large. Mesonotum very thinly dusted, a patch of white dust near notopleural suture, dorsocentral bristle minute, scutellar pair small; pleuræ white-dusted. Abdominal hairs sparse and yellow. Coxæ and legs yellow, hind tibiae and tarsi and tips of anterior tarsi with brownish tinge, a flexor yellow seta at basal one-third of anterior tibiae, middle tibiae with two long extensor setæ on proximal part, hind femora relatively slender, three fine fulvous setæ toward knee on lower anterior side, flexor denticles black, hind edge ciliate with sixteen delicate yellow setæ, no denticles on metatarsal sole. Halteres, calypteres and root of wing yellow; wings hyaline, stigma faint, not filling marginal cell, veins black, first vein ending in middle of stigma, sections of fifth vein 2 : 1.

Two specimens, La Suiza de Turrialba, Costa Rica, April, November, 1922, Pablo Schild, collector.

or ending in a spearhead point; eighth segment of the female often widened or distorted, the ninth segment elongate, drying in a characteristic way in museum specimens usually by becoming compressed and showing chitin ridges above. Hind legs robust, the hind coxæ larger than the others, the trochanters as large as the middle coxæ and in the male often armed with a spine beneath, the hind femora clavate, bearing strong spinous bristles beneath, which may arise from more or less developed tubercles, more pronounced in the male, above often with two subapical bristles, middle tibiæ with a series of extensor bristles, long apical bristles present on the anterior tibiæ, anterior tarsi bearing long bristles both above and below, hind tibiæ curved, geniculate at the knee, the inner surface of the hind tibiæ edged and in the males of the *purpureus* group excavated also, pulvilli large, empodium hair-like. Halteres black in all the species; calypteres large and heavily fringed. Wings with large anal angle, often darkened in color toward the base, costa stopping at the fourth vein, no basal bristle, costal hairs long and abundant, costal cell sometimes widened, auxiliary vein straight, lying close to the first vein into which it vanishes at the middle of the wing, first vein ending considerably beyond the middle of the wing, second vein usually including a darkened stigma, third vein simple, the pedicel of the second and third veins short, arising beyond the middle of the elongate basal cells, discal cell large, elongate, located beyond the middle of the wing, complete, emitting two simple posterior veins, anal crossvein curved but continuing toward the hind margin, anal vein weak but complete.

Type species : *E. purpureus* Walker (Pl. I, Fig. 3), Coquillett's designation, 1903. Coquillett separated this genus from *Hybos* because of the contiguous eyes, short proboscis, lack of setulæ beneath the hind tarsi and black halteres. Additional characters are to be found in the more or less densely pilose mesonotum which shows no trace of dorsocentral or serial bristles and is devoid of pollinose coating. The ovipositor is drawn out, unlike in *Hybos*, and the pygidium is complex. In all the species the first posterior cell is narrower at the apex than opposite the posterior crossvein.

Geographical distribution.

The species are confined to North and South America. They are æstival, occurring most abundantly in meadowlands, and are not common in shady mountainous regions. The males of some species exhibit peculiar characters in the hind legs, which are more robust and spinose than in the female, and in some species the femora bear stout spinigerous tubercles, which however, are unlike those of *Lactistomyia* in being confined to a short extent and not distributed along the whole under surface. The females of many of the species resemble each other so closely that they can be identified only with difficulty. Identification characters in the genus are largely drawn from the secondary sexual structures of the male. Variation is great, however, including even the bristles and tubercles of the hind legs and the conformation of the pygidium, which structures afford the most dependable indices to the species. The known species are related to each other in the manner shown by the following table.

TABLE OF THE KNOWN SPECIES OF EUHYBOS

(BASED MAINLY ON MALE CHARACTERS)

1. Pulvilli normal; second joint of anterior tarsi shorter than first; no dorsocentral bristles	2.
Anterior pulvilli greatly lengthened; first and second joints of anterior tarsi equally long; posterior dorsocentral developed	38.

2. Inner flexor edge of hind femora with a series of strong spinigerous tubercles, the corresponding surface of hind tibiae concave and margined. 3.
Femora not armed with conspicuous spinigerous tubercles, the hind tibiae not excavated nor prominently edged. 8.
3. The stout tubercles of inner flexor edge of hind femora arising near middle of the hind tibiae, as seen when inflexed, and extending quite to the knee; hairs of thorax dark; basal half of wing infumated *E. PURPUREUS*, Walker.
The stout tubercles not extending nearer the knee than the basal third of the hind tibiae; hairs of thorax yellow 4.
4. Five to seven strong tubercles present; wings hyaline. 5.
But a single stout tubercle present 6.
5. Principal tubercles of hind femora elevated on a crested swelling opposite middle of tibia; thorax jet black . . . *E. STRUMATICUS*, nov. sp. (1).
Tubercles separated, opposite basal third of tibia which bears a pair of distally directed processes; thorax violaceous *E. OCREATUS*, nov. sp. (2).
6. Hind tibiae with prominent tubercle on extensor side; wings clear *E. VERRUCICRUS*, nov. sp. (3).

(1) *Euhybos strumaticus*, nov. sp. — Male. Length 3 mm. Black, without metallic tinge, anterior tibiae and hind knees brown, basal two joints of the tarsi yellow; hind femora with a row of strong spine-tipped tubercles; wings hyaline. Third joint of the antennae bluntly oval, two and one-half times as long as broad and one-third as long as the arista. Hairs of the notum moderately abundant, long, yellow, scutellum with two bristles and a few small hairs. Upper valve of the pygidium longer than wide, continued as a long broad process which furcates and straddles the terminal valve, the terminal valve tipped with a fringe of curled yellow hairs, right side of the lower valve bearing a long process which is broader at the middle and is fringed posteriorly with long curled yellow hairs. Middle tibiae with about five moderate extensor bristles and a long apical yellow bristle within, anterior tarsi with long yellow flexor bristle toward the base, and an apical brown extensor bristle, hind trochanters with thorn-like spine, hind femora very robust and spinose beneath, the spines growing from small tubercles which are stronger along the apical third, seven of those of the inner flexor edge grouped on a swelling and bearing very robust but short spines, this cluster corresponding to about the middle third of the tibia which is excavated and sharply margined. Halteres black. Wings hyaline or with very faint uniform brown tinge, stigma very weak but filling out the marginal cell, costal cell narrow and straight in front.

Female. The females supposedly of this species have the abdomen ending in a curious ovipositor and lack the heavy armature of the legs. The eighth segment is elongate, bearing near the middle on each side a strong backward-projecting spur, before which the segment is depressed and trapezoidal and beyond which the segment becomes more or less tubular.

Type: Plummer's Island, Maryland, R. C. Shannon, collector, in the U. S. National Museum. Paratypes from South Carolina, Georgia, Alabama, Louisiana and Texas.

(2) *Euhybos ocreatus*, nov. sp. — Male. Length 4 mm. Black, notum and tergum violaceous, tarsi yellow. Outer antennal joint oval, two times long as wide, arista two times antennal length; occiput brownish gray. Notal hairs yellowish in front, dark behind, apical scutellars strong, three lateral hairs on scutellar margin. Hairs at base of abdomen long and yellow as usual; pygidium small, upper valve ending on left side in a flat hook and on the right side in two ribbon-like processes, lower valve ending in a long ribbon-like process. Front tibiae with a small pimple on basal third of flexor side, middle tibiae with three outstanding setae, hind femora strongly spinose beneath, four or five spines arising from strong close-set tubercles toward the knee opposite a flat expansion at basal two-fifths of the tibia. This expansion projects distally on each side as a prong and beyond it, near the middle of the tibia, is a distinct bend. The flexor surface of the tibia from the bend to the apex is concave, with an edge along each side. Hind metatarsi with two long fine dorsal setae; last three tarsal joints and apex of claws black. Wings narrow, clear hyaline, stigma distinct and brown, veins thin, discal cell very long, the sections of fifth vein 4 : 1.

Female. Seventh abdominal segment transversely creased at base, then semicircularly bulged and compressed at apex, ovipositor long. Legs normal, two anterior and one superior bristle near hind knees. Stigma faint, discal cell shorter. One specimen of each sex, La Suiza de Turrialba, April, 1922, Pablo Schild, collector.

(3) *Euhybos verrucicrus*, nov. sp. — Male. Length 5 mm. Black, the anterior legs and hind tarsi yellowish brown with last three joints of all tarsi blackish. Occiput lightly cinereous; last antennal joint conical, two times as long

- Hind tibiae without external tubercle; wings dark at base. 7.
7. Femoral tubercle located at three-fifths the length and beyond middle of hind tibiae which are uniformly piceous E. COQUILLET, nov. sp. (1).
- Femoral tubercle located toward the knee, hind tibiae paler in middle. E. DENTIPES, Wiedemann.
8. Hind metatarsi with several pronounced spinous bristles along outer flexor edge 9.
- Tarsi not provided with spinous bristles 13.
9. Anterior legs entirely black, with black bristles, hind legs black or at most their metatarsi yellow, hind metatarsi with two or three spines; wings dusky toward base 10.
- Tarsi yellow, their hairs and bristles in part pale, pulvilli yellowish, hind metatarsi with four or five spines; apical part of terminal filament slender 12.
10. Terminal filament spatulate, abruptly tapering at apex, middle prong of left or lower valve projecting; spines of hind metatarsi present in female also. 11.

as wide, arista three times antennal length. Notum polished, with faint violaceous tinge, very lightly dusted above wings and in back, hairs scattered, pale in front, black behind, apical scutellars developed, no dorsocentrals; meso- and sternopleura polished, remainder gray-coated. Abdomen polished, faintly violaceous, basal hairs long and whitish, genitalia short, lightly dusted, the right valve deeply excavated below and bearing a long flat process in the excavation. Coxæ black, base of anterior femora fuscous, no excessively long setæ, a small flexor spur near base of front tibiae, four extensor bristles but no flexor bristle along middle tibiae, hind trochanters with spinous bristles, hind femora robust, with stout spinous bristles as follows: one preapical dorsal, four anterior, nine anterior-flexor, several ventral toward knee, five posterior-flexor on basal half, of which the third and fourth arise together from a strong tubercle, two posterior at two-thirds the length of the femur, the lower bristles mostly arising from small tubercles, hind tibiae gently arcuate, a strong tubercle at two-thirds length of outer side, two smaller preapical tubercles on inner side, pulvilli normal. Halteres wholly black. Wings nearly hyaline, veins blackish, stigma long, blackish, filling end of marginal cell, sections of costa 1 : 0.3 : 0.4 : 0.1, of fourth vein subequal, of fifth vein 1 : 0.25, third and fourth veins convergent.

Female. Ovipositor slender; hind legs normal, bristles of hind femora reduced.

Two specimens, La Suiza de Turrialba, Costa Rica, November, 1922, Pablo Schild, collector.

(1) *Euhybos Coquilletti*, nov. sp. — Male and female. Length 4 mm. Body brownish black. Third antennal joint three times as long as broad and nearly half as long as the arista; occipital hairs blackish. Hairs of the mesonotum long, moderately abundant and yellow, scutellum with two strong and two weak bristles and about four additional marginal hairs; notum and abdomen with slight purplish reflection; seventh segment of the female abdomen rather globose, the base of the eighth trapezoidal and separated from the compressed apical part by a groove, the upper part of the apical portion bears an inverted Y-shaped thickening, the lower part becomes pale apically, the ninth segment long, slender, opaque and hairy; upper valve of the pygidium in profile longer than deep, polished on the outer half, not margined with long hairs, bifurcate apically the right fork long and slender, the left broadened obconically to cover the base of the lengthened, curved, loosely hairy, terminal filament. Tarsi and anterior tibiae testaceous, anterior femora brownish, posterior legs otherwise brownish black, middle tibiae with about six extensor bristles and a long yellow preapical flexor bristle, middle metatarsi with two long brown bristles on the extensor side and a pair of shorter yellow bristles on the flexor side, hind trochanters ♂ with a strong thorn beneath, hind femora robust, strongly spinose beneath, the spines growing from stubby tubercles, in the male a single strong tubercle tipped with two thorns located at three-fifths the length of the under-inner side, a strong subdorsal bristle before the hind knee, hind tibiae ♂ conspicuously curved, the femoral tubercle coming beyond the middle. Halteres black. Wings blackish to beyond the middle of the discal cell, costal cell convex in front, a little broader than the first basal.

North Carolina. Type in the U. S. National Museum. This species was associated with specimens from North Carolina determined by Coquillett as *purpureus* (Proc. Ent. Soc. Wash. Vol. 5, p. 264, 1903). The *purpureus* form differs in having about six strong tubercles in the apical part of the hind femora ♂, the pygidium relatively shorter with the upper valve almost globular and margined with hairs, and the pubescence of the mesonotum almost black.

- Terminal filament slender, pointed, middle process of left valve broad and rounded; metatarsal spines absent in female. *E. SORDIPES*, nov. sp. (1).
11. Tarsi entirely black, their spongy pubescence dark gray, pulvilli dusky *E. NIGRIPES*, nov. sp. (2).
- Hind metatarsi yellow, their spongy pubescence concolorous, all pulvilli whitish *E. METATARSALIS*, nov. sp. (3).
12. Pile of mesonotum black; wings usually quite dark toward base; ovipositor cylindrical; metatarsal spines present in female *E. SUBJECTUS*, Walker.
- Pile of mesonotum yellow; wings uniformly subhyaline; base of ovipositor greatly swollen and deformed; hind metatarsi of female not spinose. *E. GENITIVUS*, nov. sp. (4).

(1) *Euhybos sordipes*, nov. sp. — Male. Length 3.5 mm. Black, including nearly all of legs, base of wings infumated, hind metatarsi of male trispinose. Third antennal joint elliptical, twice as long as wide, arista two and one-half times antennal length; occiput fulvo-pollinose. Notal hairs long, sparse and blackish, four lateral hairs on scutellum, dust at back of mesonotum fulvous. Abdomen bronzed, hairs whitish, pygidium subglobose, black hairy, the flat elliptical piece of the left side between the upper and lower valves large, extending fully half-way to the end of the pygidium, left valve with lobe above at apex, terminal filament very thin, sharply pointed, hairy, its base abruptly deformed and expanded, right valve sharply excised at apex. Legs mostly black, base of anterior tarsi piceous, base of hind tarsi brown, hairs mostly black, those of anterior tibiae and tarsi brown, of hind tarsi reddish, of hind coxae yellow, hind trochanters with single spine, hind femora robust and spinose, with nine spines in front below, two anterior and three dorsal, none on middle posterior face, flexor spines irregular, arising from small tubercles, geniculation of the simple, curved hind tibiae dark castaneous, pulvilli gray. Wings normal, the basal darkening merging with the hyaline apex, stigma dark but almost continuous with the basal darkening, sections of fourth vein 2 : 1.

Female. Hind femora relatively slender, less spinose, no dorsal, one anterior spine; apical segments of abdomen simple.

Four specimens, Mer Bleue, Ottawa, 11 August, 1923, F. Ide. Type and allotype in Canadian National Museum, two male paratypes retained.

(2) *Euhybos nigripes*, nov. sp. — Length 3.5 mm. Shining jet black with entirely black legs, the hind metatarsi with two or three spinous black bristles on the outer side, wings fuliginous toward the base. Eyes narrowly separated below the antennae, the face long and linear; third joint of the antennae twice as long as wide, the arista less than twice as long as the antenna. Mesonotal hairs long, rather abundant and black, scutellum with two bristles and about five pairs of hairs, pile of the abdomen long and whitish. Upper valve of the pygidium but slightly convex, loosely hairy, shining only at the truncated tip and without a subapical tooth on the right side, terminal filament obliquely truncated at the end; ovipositor more or less conical, usually showing a Y-shaped carina and polished trapezoidal basal piece, and pollinose below. Knees black like the remainder of the legs, middle tibiae with about six extensor bristles, the apical bristles long and black, bristles of the tarsi black, but the shorter hairs of the anterior tibiae and tarsi pale, hind femora moderately clavate and spinose beneath, hind metatarsi bearing a couple of long slender extensor bristles and two or three stout bristles on the outer side, one or two of the latter located near the base and one at the tip; pulvilli dusky. In the female the spines are less pronounced, the spur of the hind trochanters absent, the spinous bristles of the hind femora reduced and the spines of the hind metatarsi present only as finer bristles. Wings smoky to beyond the middle, passing gradually into the gray tip, stigma weak, filling the marginal cell, costal cell not bowed.

Numerous specimens: Vermont, Massachusetts (G. de N. Hough and C. W. Johnson), New York (C. T. Brues and O. A. Johannsen), New Jersey (C. T. Greene), Pennsylvania (E. T. Cresson, Jr.), Virginia (N. Banks), Illinois, Missouri (C. F. Adams).

(3) *Euhybos metatarsalis*, nov. sp. — A series of specimens from the Okefenokee Swamp, Georgia, collected by J. C. Bradley, and also from Tifton, Georgia, received from Dr. Hough, Sumter, South Carolina (Sturtevant) and Kushla and Saraland, Alabama (Sturtevant), differ from *nigripes*, in their smaller size, measuring three millimeters or less, and in having the hind metatarsi and more or less of the soles of the following joints yellow. The pubescence of the sole is yellow and not grayish as in the black-footed form. The pulvilli are yellowish. In addition, the notal hairs are shorter and less dense, the slender bristles of the anterior tibiae and tarsi are shorter, the hind metatarsi are a little stouter and their spines stronger. The metatarsal spines are evident in the female also, as in *nigripes*.

(4) *Euhybos genitivus*, nov. sp. — Length 3.5 mm. This species is essentially distinct in its curious ovipositor; in other respects it closely resembles *subjectus*, as identified by Coquillett. Eyes contiguous except for a small subantennal triangular space; third joint of the antennae two and one-half times as long as wide, the arista slightly more than twice the

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| 13. Costal cell much widened | 14. |
| Costal cell scarcely or not at all widened | 17. |
| 14. Mesonotum with blue lustre | 15. |
| Mesonotum jet black. | 16. |
| 15. Mesonotum vittate; middle tibiæ yellow; wings uniformly darkened. | E. INTEGER, Walker. |
| Mesonotum not vittate; middle tibiæ dark; wings with hyaline apex. | E. EURYPTERUS, Bezzi. |
| 16. Abdomen with bronze lustre; wings apically hyaline | E. DIMIDIATUS, Walker. |
| Abdomen black; wings dark at apex. | E. LATIPENNIS, Bezzi. |
| 17. Base of wings distinctly darker than apical portion | 18. |
| Wings entirely hyaline or subhyaline to the base, the stigma usually present | 32. |
| 18. Stigma distinctly limited. | 19. |
| Stigma obsolete, sometimes the entire marginal cell carries forward the basal darkening of the wings | 23. |
| 19. Mesonotum purple, blue or green. | 20. |
| Body jet black. | 22. |
| 20. Front tibiæ black | E. PILOSUS, Schiner. |
| Front tibiæ yellowish. | 21. |
| 21. The fine villous coating at sides of mesonotum gray. | E. LOEWI, Wheeler & Melander. |
| The fine villous coating brown | E. ELECTUS, Melander. |
| 22. Legs mostly black. | E. TABASCENSIS, Wheeler & Melander. |
| Legs brownish yellow | E. CRASSIPES, Fabricius. |
| 23. Brown of base of wings invading discal cell. | 24. |
| Discal cell wholly hyaline | 27. |
| 24. Geniculation of hind tibiæ reddish; pygidium globose | 25. |
| Hind knees black; pygidium longer than wide, with long apical process from ventral valve; base of ovipositor distorted, bullate (<i>E. triplex</i> , Walker). | 26. |
| 25. End processes of pygidium short; ovipositor simple. | E. DUPLEX, Walker. |
| End processes as long as body of pygidium, that of upper | |

antennal length. Hairs of the notum sparse and yellow, scutellum with two bristles and four minute hairs, hairs of the abdomen sparse. Abdomen with a slight purple tinge, the eighth segment of the female large, jet-black, its base twice as wide and thick as the preceding segment, underneath with a strong broad tubercular basal swelling, beyond the basal third the segment is suddenly constricted, the small tip being pollinose beneath; pygidium small, upper valve shining, its marginal hairs rather long, its apical process notched, terminal filament slender and attenuated to a point. Legs piceous, the anterior tibiæ and tarsi and the hind tarsi brownish yellow, the long bristles of the anterior legs yellow, hind femora moderately thickened, spinose below, hind metatarsi of the male with four brown spinous bristles along the outer side, entirely lacking in the female, pulvilli pale yellow. Wings uniformly with a faint brownish tinge, the stigma slightly darker, costal cell straight.

White Mountains, New Hampshire, H. K. Morrison, collector. Type in the U. S. National Museum. In *subjectus*, as determined by Coquillett, the hairs of the thorax are black, the base of the wings more or less brownish, especially noticeable in the male, the ovipositor simple and slender and much less produced, and the hind metatarsi of the female bear small spinous bristles on the outer side. Some specimens of *subjectus* have these spines black and others yellow in either sex. Where they are yellow the base of the wings is less dark. I have specimens of *subjectus* from New Hampshire, Massachusetts, New York, New Jersey, District of Columbia and Georgia.

- valve like a large hooked beak; base of ovipositor strongly constricted in the middle. E. GRYPHUS, nov. sp. (1).
26. Apical process of ventral valve single-pointed, the prong at middle of left side of ventral valve directed obliquely backward and broadly rounded at apex E. TRIPLEX, nov. var. SIMPLEX (2).
- Apical process more or less deeply furcate, the middle prong on left side with acute tip. E. TRIPLEX, Walker, s. str.
27. Body with cyaneous tinge E. PILOSIFORMIS, Bezzi.
- Body black, without metallic lustre 28.
28. Mesonotal pile grayish in front; in specimens identified as this species the right valve of pygidium is tipped with a pencil of black setæ E. SMITH, Wheeler & Melander.
- Mesonotal pile brownish to black. 29.
29. Hind femora and tibiae brown; in specimens identified as this species the hairs of the hind femora are dense and coarse E. BAKERI, Wheeler & Melander.
- Hind tibiae and femora black (*yucatanus* included here but in absence of type its location can not be more definitely given). 30.
30. Veins thin, first basal cell two-thirds as long as second: pygidial hairs short and sparse, middle prong of left or lower valve shifted apical to terminal one and ribbon-like, end-process of right valve very large and leaf-like. . . . E. LEPTONEURA, nov. sp. (3).

(1) *Euhybos gryphus*, nov. sp. — Male. Length 4.5 mm. Black, tarsi yellowish, wings infumated, especially at base, no stigma. Third antennal joint conical, a little more than twice as long as wide, arista two and one-half times antennal length; occiput brownish cinereous. Notal hairs black, two pairs of scutellars, pollen above wings brown. Hairs of first segment of abdomen whitish, of remainder black or piceous; right valve of pygidium dusted with brownish, its apical half formed as a strong wide beak, its basal half quadrate when viewed from above, the inner distal angle bearing a strong spur directed to the left; left valve stout, its middle process located at the tip and rather small and acute, its articulate terminal process swollen near the base and thence curved and talon-like. Knees brownish, hind femora robust, slightly shorter than tibia and metatarsus together; femoral hairs black, eight stout, spinous bristles arising from low tubercles along lower posterior face, two along middle of this face, one extensor toward knee, two along middle of anterior face and two full irregular rows at lowermost anterior face, spine on hind trochanters strong. The dark color of base of wings extends as far as apex of anal cell, not sharply distinguished from the scarcely lighter apical portion, fourth vein deeply bent at posterior crossvein, sections of fifth vein 5 : 1.

Holotype, Tabernilla, Canal Zone, Panama, 20 June, 1907, August Busck, collector, in U. S. National Museum.

(2) *Euhybos triplex*, var. *simplex*, nov. var. — Male. Differs from the familiar and widely distributed *triplex* Walker in the formation of the pygidium, whose left valve ends in a long, curved, pointed, simple, articulate process at the base of which the valve projects obliquely backward as a strong pointed prong. In *triplex* the terminal process is forked, the two parts either equal or the one to the left smaller. The variety *simplex* represents that stage where the left furcation has disappeared. Normally in *triplex* the robust prong at the end of the left valve is more transversely directed.

Type: Greenfield, Massachusetts, June 1, 1914. Additional specimens from Lyndon, Vermont, Long Island, New York, Chester Co., Pennsylvania, Central Illinois, and Austin, Texas.

(3) *Euhybos leptoneura*, nov. sp. — Male. Length 4 mm. Black, tibiae castaneous, base of tarsi yellowish, wings hyaline, brownish at base. Third antennal joint subulate, twice as long as wide, arista two and one-half times antennal length; occipital pollen fulvous. Notal hairs yellow, one pair scutellars, pollen at edge of notum brown. Abdominal hairs golden, base of pygidium globular and lightly dusted with brown, its hairs short and sparse, the right valve deeply emarginate at end above and continued as a large forked leaf-like process, the left valve ending above in an articulate conical process with deflexed tip. Sides of front tibiae ciliate, middle tibiae with six extensor bristles, hind femora rather slender, hairs brown, underside with five very small thorn-bearing tubercles close to knee and with a small transverse ridge opposite apical fifth of tibiae, anterior face with two bristles near knee, one extensor, two on posterior face near apical third,

- Veins not delicate, first and second basal cells subequal;
pygidial hairs long, middle prong of left valve not ribbon-
like. 31.
31. Excavation at upper inner middle of right valve narrow
and tipped on its proximal corner with a spine-like
process, inside conical prong distal to excavation. . . . E. SCHILDI, nov. sp. (1).
Excavation of right valve broad and not spined, inside
conical prong arising from center of excavation. . . . E. DINOPUS, nov. sp. (2).
32. Legs wholly black; wings pure hyaline E. HYALOPTERUS, Bezzi.
- Legs more or less yellow. 33.
33. Crossveins clouded with brown E. STIGMATICUS, Schiner.
- Crossveins not clouded 34.
34. Hind femora strongly and abundantly spinose. E. THRIXOTHRIX, nov. sp. (3).
Hind femora less spinose, no spines on upper posterior
face 35.

hind tibiae flattened opposite femoral ridge, hind trochanters without spine. Wings narrow, no stigma, veins very thin, first basal cell about two-thirds as long as second, section of fifth vein 4 : 1. Female. Ovipositor simple.

Two specimens, Frontera, Tabasco, Mexico, March 29, C. H. T. Townsend, collector, holotype in U. S. National Museum. The structure of the hind legs indicates relationship with the *purpureus* group, but as the ridge of the tibiae and the depression of the femora are not prominent the species has been placed in the latter part of the key.

(1) **Euhybos Schildi**, nov. sp. — Male. Length 3.5 mm. Black, the geniculation of the hind tibiae and the basal two joints of all tarsi brownish yellow, basal third of wings infumated, stigma obsolete. Third antennal joint ovate, a little less than twice as long as wide, arista two and one-half times antennal length; occipital coating brownish gray. Notal hairs black and abundant, the sparse dust at sides and rear brownish, apical scutellars approximate, six setiform hairs on each side of scutellar margin. Abdominal hairs black, basal tergite pollinose, pygidium short, hairy apex contorted, left valve with strongly concave inner margin and terminated by a long slender finger-like process, right valve narrowly and deeply excised at the middle, the proximal corner of the excision tipped with a spine, the distal corner covering a stout tooth, terminal process of right valve undeveloped but a finger-like process extending from apex below. Six extensor setae on middle tibiae, hind femora stout and strongly spinose, hairs black, seven irregularly placed spinous bristles on posterior face, no extensors or anterior bristles, eight stout spinous bristles in posterior flexor row, other flexors irregular, hind tibiae more strongly curved than usual, hind trochanters with a spine. Fourth vein deeply bent at posterior crossvein, sections of fifth vein 3.5 : 1.

Female. Hind femora slender, without the strong bristles on posterior face; ovipositor with deformed base, the seventh abdominal segment large, proximally fringed with long thin black setae and transversely depressed across the middle and again before apex, the intervening portion bullate.

Two males and five females, La Suiza de Turrialba, Costa Rica, Pablo Schild, collector. The paratype male has the hind tibiae less curved, as in the females.

(2) **Euhybos dinopus**, nov. sp. — Male. Length 3.5 mm. Black, abdomen with slight bronzed lustre, tarsi yellow, basal third of wings deep brown, remainder hyaline. Third antennal joint subulate, slightly over twice as long as wide, arista twice the antennal length; occiput brownish-gray pollinose. Notal hairs blackish, four scutellars. Abdomen short, hairs brown, pygidium longer than wide, greatly contorted, left valve terminated by the broad middle process, which is tipped with a spine, the apical projection articulate and long, right valve excavated along the inside and bearing a stout conical projection at the middle of the excavation, apically broadly expanding and notched for the reception of the termination of the opposing valve, below this notch continued as a spoon-shaped projection. Seriate bristles on outside of middle tibiae strong, hind femora robust, as long as tibia and metatarsus together, hairs black, seven strong bristles along lower part and four along middle of anterior face, three extensor bristles; pulvilli yellowish, claws reddish except black tip. Brown of wings ceasing at base of discal cell, no stigma, basal cells nearly coextensive, sections of fourth vein 4 : 1, fourth vein much bent at posterior crossvein.

Holotype, San Rafael, Vera Cruz, Mexico, C. H. T. Townsend, collector, in U. S. National Museum.

(3) **Euhybos thrixothrix**, nov. sp. — Male. Length 4 mm. Occipital dust brown, hairs black, outer antennal joint ovate, twice as long as wide, arista two and one-half times antennal length. Thorax black, notum with slight blue lustre, pile blackish, the finely villous patches above wings brown. Abdomen black with slight bronze tinge, basal hairs long and whitish, pygidial hairs dark, terminal prong strong, obliquely truncate and crenulate at tip. Coxae, femora, hind tibiae and apex of tarsi black, anterior tibiae and all tarsi brown, middle tibiae with an extensor row of six setae, terminal and metatarsal setae long and brown; hind femora robust, a little longer than the simple curved tibia and metatarsus combined, unusually

35. Last posterior cell four times as long as wide; hind femora
twice the width of the anterior ones *E. ARDOPEODES*, nov. sp. (1).
Last posterior cell three times as long as wide. 36.
36. Upper valve of pygidium ending in a long strong curved
spine, lower valve ending in a flat broadly U-shaped
process *E. SPINIGER*, nov. sp. (2).
Upper valve ending in a flattened piece, lower valve in two
large disconnected leaf-like processes. 37.
37. End-piece of upper valve very short, left basal plate unde-
veloped; hind femora three times width of anterior ones *E. CUSPIDATUS*, nov. sp. (3)
End-piece of upper valve very long, left basal plate large
and elliptical; hind femora only moderately robust . . . *E. BAROPEODES*, nov. sp. (4).

strongly spinose, ten spines in outer flexor row, one on outer face at four-fifths the length, two tandem above the last-men-
tioned, five along inner face, seven in inner flexor row and along the flexor face several irregularly located, the flexor
spines arising from small tubercles; hind trochanters spinigerous. Halteres black; wings uniformly but slightly infu-
mated. Stigma brown, sections of fifth vein 3 : 1

Female. Bristles of hind legs reduced, none on trochanters, about five to seven in outer flexor row, one on outer
face and one above and three in inner flexor row, all toward knee.

Three males and three females, La Suiza de Turrialba, Costa Rica, Pablo Schild, collector.

(1) *Euhybos ardopeodes*, nov. sp. — Closely related to *E. thrixothrix*, differing in the following characters; last
antennal joint slightly more than twice as long as wide; processes of genitalia smaller, the terminal prong slender, curved,
jointed and talon-like; hind femora a little shorter than the tibia and trochanter together and with reduced chaetotaxy, two
bristles on upper anterior face toward knee, none on posterior face, about ten irregularly placed in each of inferior rows
with irregular spines between. In the female the bristles of the hind femora are still further reduced, with seven in the
lower anterior row and only apical three in the lower posterior row.

Three males and three females, La Suiza de Turrialba, Costa Rica, Pablo Schild, collector.

(2) *Euhybos spiniger*, nov. sp. — Male. Length 3 mm. Black, anterior tibiae brownish, base of tarsi yellowish,
wings hyaline, no stigma, third joint of antennae elongate oval, slightly over twice as long as wide, arista twice antennal
length; occiput lightly cinereous. Notal hairs pale, sparse pollen gray, two scutellars. Abdominal hairs all pale, upper
valve of pygidium ending in a long curved black spine, which is in reality double but connate, lower valve ending in a large
flat process which is deeply excised to admit the opposing spine, the left portion narrow and ribbon-like, the right portion
broader and with an acute expansion along left side. Four moderate extensor bristles on middle tibiae, no spine on tro-
chanters, hairs of hind femora pale, one anterior and two extensor bristles near knee, no posterior bristles, flexor spines
short and thick arising from roughenings of the surface, seven in anterior row, the others irregular, hind knees paler.
Section of fifth vein 2.5 : 1.

Female. Ovipositor simple, hind femora with smaller bristles.

Four specimens, Liguanea Plain, Jamaica, November-December, 1911, C. T. Brues, and one from Utuado, Porto
Rico, January 1899, August Busck, the last in the U. S. National Museum.

(3) *Euhybos cuspidatus*, nov. sp. — Male. Length 3.5 mm. Body, femora and tibiae piceous black, knees and
tarsi yellowish; wings uniformly smoky hyaline, the elliptical stigma brown. Arista elongate oval, two and one-half times
antennal length; occiput dusted with yellowish gray. Notal hairs brownish, paler in front and darker in back, four scutel-
lars, pollen above wings yellowish. Abdominal hairs pale, pygidial hairs long, the middle and apical processes of left or
lower valve very large, leaf-like, pointed and together terminating the pygidium one from each side. Hind femora robust,
in length equal to tibia and metatarsus together, its hairs yellow, no spinous bristles on front or back faces, one above toward
knee, about ten in flexor rows. Submarginal cell two-thirds width of stigma, sections of fifth vein 1 : 0.6.

Holotype, Horse Neck Beach, near New Bedford, Massachusetts, August 4, 1896, G. de N. Hough, collector. A
female which I collected at Cold Spring Harbor, New York, is not associated with any other species and may possibly belong
here. It has hyaline wings, no stigma, black body and naturally more slender hind femora.

(4) *Euhybos baropeodes*, nov. sp. — Male. Length 4 mm. Piceous black, anterior tibiae brown, tarsi
testaceous, wings uniformly lightly smoky. Third antennal joint broadly lanceolate, scarcely twice as long as wide, arista
two and one-half times length of antenna; occiput lightly cinereous. Notal hairs brown, pollen gray, two scutellars.
Abdominal hairs whitish at base, brown on the large globose greatly distorted pygidium, left or lower valve bowl-like, with
a pointed process at right end and terminated by two widely separated strong curved flattened convergent finger-like
processes, the right valve much smaller and ending in a large L-shaped process the extension of which is directed to the left
between the two left processes of the left valve. Three small extensor bristles on middle tibiae, no spine on trochanters;

38. Abdomen not surpassing the wings in length *E. DERODACTYLUS*, nov. sp. (1).
 Abdomen greatly surpassing the wings *E. LEPTOGASTER*, nov. sp. (2).

Geographical distribution.

1. *E. ardopeodes*, nov. sp. Costa Rica.
2. *E. Bakeri*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, p. 372 [1901] (*Hybos triplex*, var. *Bakeri*). Mexico.
3. *E. baropeodes*, nov. sp. New Hampshire.
4. *E. Coquilletti*, nov. sp. North Carolina.
5. *E. crassipes*, Fabricius, Syst. Antl. p. 146 [1805] (*Hybos*); Wiedemann, Aussereurop. Zweifl. Ins. Pt. 1, p. 539 [1828] (*Hybos*); Bezzi, Nova Acta Kais. Naturf. Halle, Vol. 91, p. 305 [1909] (*Hybos*). South America.

hind femora moderate, no bristles on upper posterior face, one extensor near knee, two on anterior face, ventral bristles normal; hind tibiae simple. Stigma very faintly indicated, sections of fifth vein 3 : 1, fourth vein not much bent at posterior crossvein.

Holotype, White Mountains, New Hampshire, H. K. Morison, collector, in U. S. National Museum.

(1) *Euhybos derodactylus*, nov. sp. — Female. Length 5.5 mm. Occiput black, finely dusted with gray; outer antennal joint two times long as broad, arista three times antennal length. Mesonotum polished, with purple lustre, posterior declivity very finely dusted, setulae seriate, posterior dorsocentral developed, apical scutellars approximate, about six minute lateral hairs on each side; pleurae black. Abdomen long and slender, equalling the long wings, polished, the tergites with purple lustre, the eighth segment chitinized, short, tubular, the ninth or ovipositor lengthened, bulbous in the middle, hairs long and white at base, elsewhere very sparse and short. Anterior coxae brown, hind ones black, anterior legs yellow, last three joints of all tarsi black, middle tibiae bullate at basal third and bearing a small spur within, posteriorly ciliate, two basal joints of anterior tarsi extremely long and slender, together equal to their tibiae, hind femora strongly clavate, with yellow base and abruptly black club, eight strong bristles in outer flexor row, some short stout bristles underneath near knee, inner flexor bristles more slender, a single extensor preapical bristle, hind tibiae geniculate, arcuate, simple, yellow on basal three-fifths and black apically; no flexor tibial bristles, three long slender extensor bristles on middle tibiae, extremely long setae on anterior metatarsi, pulvilli of anterior legs more than twice as long as hind ones. Halteres with long thin yellow stalk and black knob. Wings hyaline, veins thin and blackish, a strong blackish stigma filling end of marginal cell, costal sections 1 : 0.15 : 0.18 : 0.05, first posterior cell decidedly tapering, sections of fourth vein subequal, of fifth vein 1 : 0.5.

Holotype, La Suiza de Turrialba, Costa Rica, November, 1922, Pablo Schild, collector.

(2) *Euhybos leptogaster*, nov. sp. — Male. Length 7 mm. An extremely slender species proportioned as in the asilid genus *Leptogaster*. Black; eyes narrowly separated along the lengthened face; last antennal joint top-shaped, the filiform arista nearly three times antennal length; proboscis very short, broad, palpi narrow; occiput cinereous-dusted, its sparse hairs long, fine and black. Thorax dusted, with brown on mesonotum and with gray on pleurae, a small denuded spot in dorsocentral rows before base of wings, posthumeral area more densely coated, hairs sparse, posterior dorsocentral, two lateral and the apical scutellar pair distinct. Abdomen polished, remarkably thin, second to fourth segments tubular, each about five times as long as wide, segments six to eight shorter and dusted, genitalia consisting of two large, long, convex, distorted, black-hairy valves. Coxae black, anterior legs yellowish, last two joints of all tarsi black, hind femora black except narrow knees, hind tibiae and tarsi luteous; first two joints of anterior tarsi very thin and long, together equalling their tibiae, anterior pulvilli excessively long, twice the length of their claws, hind pulvilli one-half the length of their claws; hind femora with about ten strong spines in each of the flexor rows each arising from a low tubercle, a small spine above towards the knee, hind tibiae simple; excessively long setae present as follows: a pair near end of front tibiae, a pair at apex of front metatarsi, a flexor at basal third of middle tibiae, two short extensor below middle knees, one at tip of middle tibiae, one at base of middle metatarsi, one extensor near middle and a pair at apex of same joint. Halteres with thin pale stalk and black knob. Wings hyaline, veins thin and brownish, no stigma, first vein short, ending before posterior crossvein, costal sections 1 : 0.6 : 0.3 : 0.1, third and fourth veins almost parallel, slightly converging, sections of fourth vein 1 : 1.2, of fifth vein 1 : 0.6, pedicel of second and third veins very short.

Female. Alternate bristles of anterior flexor row of hind femora reduced, there being five strong ones left, posterior reduced to three small bristles toward knee. Eighth abdominal segment corneous, bulbous on each side of base and continuing as a long flattened ovipositor.

Two specimens, La Suiza de Turrialba, Costa Rica, Pablo Schild. This curious species departs from the habitus of its congeners, but not sufficiently to be removed to a separate genus. The lengthened abdomen, elongate anterior feet with their peculiar pulvilli, the pollinose thorax with developed dorsocentral bristles constitute a combination of characters disagreeing from other species of *Euhybos*. The nearly obliterated face, short proboscis and chitinized ovipositor would place the species in *Euhybos* rather than in *Hybos*.

6. *E. cuspidatus*, nov. sp. Massachusetts.
7. *E. dentipes*, Wiedemann, Aussereurop. Zweifl. Ins. Pt. 1, p. 538 [1828] (Hybos); Macquart, Dipt. Exot. Vol. 1, pt. 2, p. 156 [1838] (Hybos). America (locality unknown).
8. *E. derodactylus*, nov. sp. Costa Rica.
9. *E. dimidiatus*, Walker (not Loew), Ins. Saunders. Dipt. p. 205 [1852] (Hybos); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 305 [1909] (Hybos). Brazil.
10. *E. dinopus*, nov. sp. Mexico.
11. *E. duplex*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 486 [1849] (Hybos); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903). E. United States.
electus, Melander, in part, Trans. Amer. Ent. Soc. Vol. 28, p. 247, var. in part (1902).
12. *E. electus*, Melander, ibidem, Vol. 28, p. 247 [1902] (Hybos); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 459 [1905] (Hybos); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 305 [1909] (Hybos). West Indies.
dimidiatus, Loew (not Walker), Wien. Ent. Monatschr. Vol. 5, p. 36 [1861] (Hybos); Williston, Trans. Ent. Soc. Lond. 1896, p. 307, pl. 11, f. 83 [1896] (Hybos).
13. *E. eurypterus*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 306 [1909] (Hybos). Peru.
14. *E. genitivus*, nov. sp. New Hampshire.
15. *E. gryphus*, nov. sp. Panama.
16. *E. hyalopterus*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 425 [1905] (Hybos); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 305 [1909] (Hybos). Peru.
17. *E. integer*, Walker, Ins. Saunders. Dipt. Vol. 1, p. 205 [1852] (Hybos); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 305 [1909] (Hybos). Brazil.
18. *E. latipennis*, Bezzi, ibidem, Vol. 91, p. 307 [1909] (Hybos). Bolivia, Peru.
19. *E. leptogaster*, nov. sp. Costa Rica.
20. *E. leptonura*, nov. sp. Mexico.
21. *E. Loewi*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, p. 372 [1901] (Hybos triplex, var. Loewi). Mexico, Costa Rica.
22. *E. metatarsalis*, nov. sp. S. United States.
23. *E. nigripes*, nov. sp. E. United States.
24. *E. ocreatus*, nov. sp. Costa Rica.
25. *E. pilosiformis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 308 [1909] (Hybos triplex, var. Loewi). Peru.
26. *E. pilosus*, Schiner, Novara Reise Dipt. p. 202 [1868] (Hybos); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 425 [1905] (Hybos); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 309 [1909] (Hybos). Colombia, Peru.
27. *E. purpureus*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 486 [1849] (Hybos); Coquillett, Proc. U. S. Mus. Vol. 18, p. 437 (1896); Proc. Ent. Nat. Soc. Wash. Vol. 5, p. 264 (1903). — **Pl. 1. Fig. 3.** E. United States.
28. *E. Schildi*, nov. sp. Costa Rica.
29. *E. Smithi*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, p. 372 [1901] (Hybos triplex, var. Smithi). Mexico.
30. *E. sordipes*, nov. sp. Canada.
31. *E. spiniger*, nov. sp. West Indies.
32. *E. stigmaticus*, Schiner, Novara Reise Dipt. p. 202 [1868] (Hybos); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 305 [1909] (Hybos). Colombia.
33. *E. strumaticus*, nov. sp. E. United States.
34. *E. subjectus*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 486 [1849] (Hybos); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 437 (1896); Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903). North America.

35. *E. tabascensis*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, Mexico, p. 372 [1901] (*Hybos triplex*, var. *tabascensis*).
36. *E. thrixothrix*, nov. sp. Costa Rica.
37. *E. triplex*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 486 [1849] (*Hybos*); North, Central and South America.
Osten-Sacken, Cat. Dipt. N.-Amer. p. 99 and 240 [1878] (*Hybos*);
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 437 (1896); ibidem,
Vol. 22, p. 251 (1900); Wheeler & Melander, Biol. Centr.-Amer.
Dipt. Vol. 1, p. 373 [1901] (*Hybos*); Melander, Trans. Amer. Ent.
Soc. Vol. 28, p. 248, f. 79, 81 [1902] (*Hybos*); Coquillett, Proc. Ent.
Soc. Wash. Vol. 5, p. 264 (1903); Bezzi, Nova Acta Akad. Naturf.
Halle, Vol. 91, p. 309 [1909] (*Hybos*).
38. *E. verrucicrus*, nov. sp. Costa Rica.
39. *E. yucatanus*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, Mexico, p. 372 [1901] (*Hybos triplex*, var. *yucatanus*).

5. GENUS LACTISTOMYIA, MELANDER

Lactistomyia, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 250 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 251 (1903); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301, 311 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 557 (1910).

Characters. — Robust, thorax and abdomen typically densely covered with fine reddish brown tomentum. Head more or less hemispherical, the eyes (♂) narrowly separated below the antennæ, the upper facets larger than the lower; antennæ short, the outer joint elongate oval, with a long slender terminal arista; proboscis slender, horizontally porrect, a little shorter than the head; palpi slender, porrect also; occipital bristles minute. Thorax globose, very prominent, no bristles but with short scattered fine reddish pubescence, longer at the sides and posteriorly and almost bristle-like at the margin of the scutellum. Abdomen stout, cylindrical, deflexed posteriorly; pygidium large, flexed to the right, consisting of large convex apically deformed dorsal and ventral valves and a short thin compressed hastate terminal filament; ovipositor elongate and narrow. Legs short, the hind femora and tibiæ remarkably enlarged, the hind femora strongly tuberculate and spiny beneath, their tibiæ bare, geniculate at the patella, curved, sharp on the inner edge and with flat sides, hind metatarsi longer than the remainder of the tarsus. Wings rather narrowed apically, veins strong, no evident stigma, third and fourth veins converging, the first posterior cell much narrower in the margin than at the posterior crossvein, discal cell long and narrow.

Genotype : *L. insolita* Melander (Pl. 5, Fig. 44), the original species. The genus is restricted to tropical America, with one new species from the Philippines. Coquillett, who had not seen specimens, concluded that *Lactistomyia* was synonymous with *Hybos*, but the genus is more related to *Euhybos*, as shown by the femoral armature and narrowed apical cell. The relation of *Hybos*, *Euhybos* and *Lactistomyia* to each other is closely paralleled by the groups of *Syneches* — i. e. *Syneches*, *Epiceia* and *Harpamerus*, and shows the trend of specialization in the Hybotinæ. There is a tendency toward the closure of the first posterior cell, similar to that which is carried to a greater extent in the Syrphidæ or Tachinidæ, and a corresponding tendency to an elaborate development of the hind legs.

Geographical distribution.

1. *L. dimidiata*, Bellardi (not Walker or Loew), Ditt. Messic. Pt. 2, p. 97 Mexico.
[1861] (*Hybos*); Mem. Accad. Sc. Torino (2), Vol. 21, p. 197 [1865]
(*Hybos*).
sequens, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 249 [1902] (*Hybos*);
Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 305 [1909] (*Hybos*).

2. *L. hyalina*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 312 (1909). Peru.
3. *L. insolita*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 251, pl. 7, f. 82 (1902); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 311 (1909). Brazil.
4. *L. picea*, Wiedemann, Aussereurop. Zweifl. Ins. Pt. 2, p. 647 [1830] (*Hybos*); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 305 [1909] (*Hybos*). Brazil.
5. *L. polita*, nov. sp. (1). Luzon.
6. *L. serrata*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 312 (1909). Peru.

6. GENUS CERATHYBOS, BEZZI

Cerathybos, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301, 303 (1909).

Characters. — Polished metallic black species of 5.5 millimeters length, closely related to *Hybos* but the third joint of the antennæ is very much dilated, semicircular, the convex side above. Head very small and with an evident neck, ocellar tubercle small; eyes contiguous on the face (♀) as well as on the front, the facets large and larger above; arista slender and long; proboscis perpendicular in the only known specimen, as long as the head, palpi small. Thorax rather convex, with short pubescence and with lateral bristles only, scutellum with four marginal bristles; ovipositor present. Anterior legs with long bristles, hind femora incrassate, spinose but not tuberculate beneath; front tibiæ with a strong tooth inside near the knee, hind tibiæ shorter than their femora, somewhat bent. Wings short and rather broad, no evident stigma, costa with abundant short hairs, pedicel of the second and third veins arising near the middle of the wing, fourth vein convergent with the third. Halteres black.

Type species: *C. Schnusei*, Bezzi, from South America.

Geographical distribution.

1. *C. Schnusei*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 303, f. 1 (1909). Peru.

7. GENUS SYNDYAS, LOEW

Syndyas, Loew, Oefv. Vet. Akad. Förh. Vol. 14, p. 369 (1857); Dipterenf. Südaf. p. 260, 332 (1860); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 115 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390 (1895); Williston, Man. N. Amer. Dipt. p. 74 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 254 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 257, 259 (1903); Bezzi, Ann.

(1) *Lactistomyia polita*, nov. sp. — Female. Length 4 mm. Head globose, eyes contiguous above and below the antennæ, divided exactly into four quadrants by the horizontal line; antennæ black, the third joint elongate oval, nearly two times long as wide, arista filiform, terminal, three times antennal length; mouthparts black, projecting straight forward beyond base of antennæ, palpi linear, appressed; occiput lightly coated with fulvous pollen. Body black, polished, the rear of the thorax and the pleuræ brown-pollinose, notal hairs scattered and black, no dorsocentral bristles. Abdominal hairs straggling, long and pale, the integument with bronze lustre, ovipositor long and flattened, styles elongate, the last two segments of the abdomen with the styles as long as segments two and three together. Legs black, the pulvilli and base of claws brownish, all joints more or less furnished with black hair, middle tibiæ and anterior tarsi with a few outstanding thin setæ, hind femora at middle as thick as their coxæ, their under face bearing 15 small tubercles each provided with a stout spine, middle tibiæ stout, two-thirds as long and nearly as wide as their femora, hind metatarsi nearly as long as four following joints, bearing three stout spines on exterior face, of which two are near the base and one at the apex. Halteres black. Wings lightly infumated, stigma weakly indicated, filling outer half of marginal cell, veins dark, anal vein faint, first posterior cell coarctate.

Holotype, Mt. Makling, Luzon, P. I., received from Prof. C. F. Baker. The species departs from the typical forms in the reduction of pollinosity and in the less deformed hind legs.

Mus. Hungar, Vol. 2, p. 321 (1904); Melander, Williston's 3d. Man. N. Amer. Dipt. p. 224 (1908); Kertész, Cat. Dipt. Vol. 6, p. 9 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 610 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 42 (1910); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 333 (1920).

Characters. — Jet black species with black legs, hemispherical head, greatly arched thorax, clavate hind tibiae and weak vein between the basal cells. Head relatively large, consisting almost wholly of the eyes, which in both sexes are subcontiguous below the antennae and have the facets of the upper half enlarged; outer antennal joint oval, with a long thread-like bare terminal arista; proboscis projecting horizontally but shorter than the head, palpi linear; no cephalic bristles. Thorax sparsely pilose, only a pair of notopleurals and a pair of scutellars developed bristle-like. Abdomen cylindrical, curved downward, pygidium terminal, small and closed; last two segments of the female abdomen tapering and drawn out to form a sort of ovipositor. Legs slender but the hind tibiae compressed clavate and the hind metatarsi swollen, middle tibiae with slender bristles, hind femora spinulose beneath, pulvilli rather small. Wings transparent, no stigma, costa with very short hairs and extending to the fourth vein, pedicel of the second and third veins very short, turned up at its origin, third vein simple, first posterior cell narrowed at the apex of the wing, discal cell smaller than usual, vein between the first and second basal cells very weak or wanting, anal cell acutely pointed, anal vein weak, no alula.

Type species: *S. opaca*, Loew's first species, which was Coquillett's designation in 1903. Of the commonest species, *polita*, the males differ from the females in having the tergites largely opaque, but of *dorsalis* the tergites of the female are opaque also. The Oriental species *eumera* possesses greatly enlarged and spinose hind femora, and bears a similar relationship to the other species that *Harpamerus* does to *Synches*.

Geographical distribution.

1. *S. aterrima*, Meijere, Bijdr. Dierk. Vol. 19, p. 53 (1913). Ceram.
2. *S. brevior*, Meijere, Tijdschr. v. Ent. Vol. 53, p. 68, pl. 4, f. 5 (1910). East Indies.
3. *S. dorsalis*, Loew, Berl. Ent. Zeitschr. Vol. 5, p. 320: Cent. 1, n° 26 (1861); United States.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 254 (1902).
4. *S. elongata*, Meijere, Tijdschr. v. Ent. Vol. 53, p. 67, pl. 4, f. 4 (1910). East Indies.
5. *S. eumera*, Bezzi, Ann. Mus. Hungar, Vol. 2, p. 323, f. 2 (1904). New Guinea.
6. *S. nigripes*, Zetterstedt, Dipt. Scand. Vol. 1, p. 240 [1842] (*Ocydromia*); Europe.
Vol. 8, p. 2996 [1849] (*Ocydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (17), p. 48 [1851] (*Ocydromia*); Loew, Dipterenf. Südafr. p. 260 (1860); Roeder Wien. Ent. Zeit. Vol. 7, p. 96 [1888] (*Hybos*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 45 [1893] (*Hybos*); Wahlgren, Ent. Tidskr. Vol. 31, p. 47 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 8 (1913).
7. *S. nitida*, Loew, Oefv. Vet. Akad. Förh. Vol. 14, p. 369 (1857); Dipterenf. Caffraria, Seychelles.
Südafr. Vol. 1, p. 260 (1860); Collin, Ent. Mo. Mag. 699, p. 185 (1922).
8. *S. opaca*, Loew, Oefv. Vet. Akad. Förh. Vol. 14, p. 369 (1857); Dipterenf. Caffraria.
Südafr. Vol. 1, p. 260, pl. 2, f. 44 (1860).
9. *S. parvicellulata*, Bezzi, Ann. Mus. Hungar, Vol. 2, p. 321, f. 1 (1904); East Indies.
Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 333 (1920).
10. *S. polita*, Loew, Berl. Ent. Zeitschr. Vol. 5, p. 321: Cent. 1, n° 27 United States.
(1861); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 254, f. 83 (1902). — **Pl. 5, Fig. 39.**

8. GENUS ACARTERUS, LOEW

Acarterus, Loew, Oefv. Vet. Akad. Förh. Vol. 15, p. 340 (1858); Dipterenf. Südafr. p. 262 (1860); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 118 (1889); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 321 (1904).

Characters. — Third antennal joint conical, longer than the apical arista, which is stiff, straight and bare, its microscopic hairs visible only by very strong magnification; proboscis longer than the head, horizontally porrect, slender and sharply pointed, the palpi linear; eyes completely contiguous on the vertex. Body wholly black, subshining, the thorax apparently not greatly convex, abdomen conical. Legs simple, the hind femora neither thickened nor spinose below, underside of the hind tibiae and tarsi with short whitish pile. First vein very long ending near the second, which scarcely bows into the costa, stigma long and brown, basal cells of nearly equal extent, discal cell but little shorter than the second posterior, emitting two simple posterior veins, third and fourth veins slightly convergent.

Type species : *A. unicolor*, Loew (Pl. 5, Fig. 42), the original species. The genus *Acarterus*, founded on a South African fly that possessed only negative characters, has been associated with *Parahybos* by Bezzi. At first, the position of the arista, terminal in *Acarterus* and subapical in *Parahybos*, was thought a sufficient distinguishing trait to maintain the two as valid genera. But Bezzi has recently found a series of East Indian species, evidently closely related, in which the location of the arista varies. However, Loew's figures of *Acarterus* show the pedicel of the second and third veins much abbreviated, the first vein unusually long, the arista decidedly shorter than the third antennal joint and the thorax not greatly convex. The South African species can therefore not be congeneric with the Oriental species placed in *Acarterus* and *Parahybos*, and the latter accordingly have here all been removed to *Parahybos*, leaving *Acarterus* a monotypic genus.

Geographical distribution.

1. *A. unicolor*, Loew, Oefv. Vet. Akad. Förh. Vol. 15, p. 340 (1858); Dipterenf. Cape of Good Hope. Südafr. p. 262 (1860). — Pl. 5, Fig. 42.

9. GENUS SYNECHES, WALKER

Syneches, Walker, Ins. Saunders. Dipt. Vol. 1, p. 165 (1852); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 118 (1889); Schwarz, Proc. Ent. Soc. Wash. Vol. 2, p. 146 [1891] (*habits*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390, 436 (1895); Williston, Man. N. Amer. Dipt. p. 74 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 251 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 258 (1903); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 329 (1904), Vol. 3, p. 425 (1905); Melander, Williston's Man. N. Amer. Dipt. 3 ed. p. 224 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301, 313 (1909); Kertész, Cat. Dipt. Vol. 6, p. 9 (1909); Mc Atee, Ent. News, Philad. Vol. 20, p. 359 [1909] (*habits*); Coquillett, Proc. U. S. Nat. Mus. Vol. 38, p. 610 (1910); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 456 (1912); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 327 (1920).

Pterospyllus, Rondani, Dipt. Ital. Vol. 1, p. 152 (1856); Schiner, Fauna Dipt. Austr. Vol. 1, p. 77, (1862); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 115 [1889] (*Pterospyllus*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 256 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 598 (1910).

Epiceia, Walker, Proc. Linn. Soc. Lond. Vol. 4, p. 149 (1860); Bezzi, Ann. Mus. Hungar, Vol. 2, p. 329 (1904), Vol. 10, p. 457 (1912).

Harpamerus, Bigot, Rev. Mag. Zool. Vol. 11, p. 306 (1859); Bezzi, Ann. Mus. Hungar, Vol. 2, p. 329, 334 note (1904), Vol. 10, p. 457 (1912); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 334 (1920).

Characters. — Greatly hunchbacked, usually opaque dark species, yellow, measuring three to eight millimeters, sometimes wings clear or maculate, the stigma usually prominent, hind femora more or less spinose, the notum not pilose. Head hemispherical, occiput flattened, eyes meeting from the antennæ to the highly perched ocellar tubercle, the upper facets very large, the front part of the eyes somewhat flattened, antennal excision shallow; face narrow, retreating, no cheeks; antennæ two-jointed, the basal joints completely fused, the outer joint oval, with apical or subapical thread-like arista; proboscis styli-form, porrect, about as long as the head, palpi usually linear but short and hairy. Thorax very highly arched, notopleural suture short, pubescence sparse and short, notum more or less covered with close short tomentum so as to take away any shine, the color accordingly variable depending on the angle of view, bristles reduced to two notopleural, one dorsocentral and one postalar, but the scutellum margined with many hair-like bristles; mesopleuræ sometimes shining, as may be the mesonotum also in some species. Abdomen tapering in both sexes, the pygidium very small and bilateral, last two segments of the female forming a sort of short ovipositor. Legs variable, hind coxæ not greatly enlarged, anterior tibiæ sometimes bearing long bristles but usually bristleless, hind femora somewhat enlarged, longer than their tibiæ, usually spinose beneath, always with at least several stiff flexor bristles, hind tibiæ hairy, not curved nor with flattened sides, sometimes more or less swollen at the apex, tarsi not incrassate, usually lengthened but in some species the hind tarsi may be short and stout. Wings rather large, anal angle strongly rectangular, costa continuing to the fourth vein, no basal bristle, costal hairs inconspicuous, pedicel of the second and third veins long, arising toward the base of the second basal cell, third vein unforked, third and fourth veins parallel or converging, discal cell emitting two simple posterior veins.

Type species : *S. simplex*, Walker's original species (Pl. I, Fig. 4). This insect was previously described by Walker as *Gloma phthia*, according to Dr. Williston, who examined Walker's type. The enigmatical crossveins in the description of *phthia* refer to the two stigmal markings.

Coquillett, in the paper on the Type Species of American Diptera, page 503, would make *Syneches* a synonym of *Acromyia* Latreille. His argument that Latreille mentions the receipt from Bonelli of a specimen named *Acromyia asiliformis* illustrates the fallacy of overthrowing accepted names on scanty information. *Stomoxys asiliformis* Fabricius is synonymous with *Asilus muscarius* Fabricius within the present genus *Syneches*, but Bonelli's reference to *asiliformis* is regarded as an erroneous identification for *Hybos grossipes*. Thus *Acromyia* is synonymous with *Hybos* and is not to be linked with *Syneches*.

The species of *Syneches* do not occur in the western part of North America but are not rare east of the Rocky Mountains. They have been found in all the other continents except Australia. These insects frequent meadowlands during the summer months and may be discovered in grass sweepings. They are often quite variable in color within the species. Three artificial subgenera are recognized, which are based on the following characters.

Syneches, sens. str. Hind femora not tuberculate nor greatly enlarged, but bearing several to many bristles or spines beneath; third and fourth veins parallel, the first posterior cell not narrowed; body color usually dark and opaque, wings sometimes maculate.

Type species : *S. phthia*, Walker.

Epiceia, Walker. Hind femora not greatly enlarged nor tuberculate, but bearing numerous spine-like bristles beneath, anterior tibiæ sometimes bristly; third and fourth veins converging, the first poste-

rior cell somewhat narrowed in the margin; body color often yellow, wings immaculate except for the stigma.

Type species : *E. ferruginea*, Walker.

Harpamerus, Bigot. Hind femora of the male bearing strong teeth or tubercles beneath from each of which extends a stout spine, hind tibiae of the male curved and tuberculate; anterior tibiae sometimes bearing long medial bristles; third and fourth veins converging, the first posterior cell somewhat narrowed in the margin; wings immaculate except for the stigma. The species that lack the dorsocentral, scutellar and tibial bristles have a broad abdomen. They may ultimately be segregated as a distinct genus.

Type species : *H. signatus*, Bigot.

Geographical distribution.

SUBGENUS SYNECHES, S. STR.

1. *S. albonotatus*, Loew, Berl. Ent. Zeitsch. Vol. 6, p. 195 : Cent. 2, E. United States.
No. 18 (1862); Coquillett, Proc. U. S. Mus. Vol. 18, p. 436 (1895);
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 252 (1902).
2. *S. annulipes*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 316 (1909). Bolivia.
3. *S. armatus*, nov. sp. (1). Philippine Islands.
4. *S. ater*, nov. sp. (2). Pennsylvania.
5. *S. barypterus*, nov. sp. (3). Costa Rica.

(1) *Syneches armatus*, nov. sp. — Male. Length 4.5 mm. Head flattened, upper facets very large; base of antennae yellow, last joint ovate, blackish, the arista three times antennal length; mouthparts testaceous; occiput and hairs black, lower portion lightly dusted. Thorax black, shining, more or less brownish on humeri and in front of posterior callosities, bristles and sparse hairs black, one long thin dorsocentral, scutellum with a pair of fine apical bristles and a few marginal hairs; pleurae mostly shining black, somewhat piceous under wings. Abdomen slender, flattened, basal half of second segment yellow, third segment yellowish at base, remainder of abdomen black with purple tinge, venter yellowish. Hairs of basal half of abdomen pale, of apical half black, genitalia small, globular, the apex appearing forcipate. Coxae and femora except anterior knees black or blackish, remainder of anterior legs and hind tarsi except last joint yellow, hind tibiae black, tibia black, pulvilli pale, hairs and bristles concolorous with integument, front tibiae with a long flexor seta at basal two-fifths, middle tibiae with a very long seta at basal two-fifths of both inner and outer sides and another at apex, hind femora stout, as long as their tibia and metatarsus together, the outer inferior face with seven stout spines arising from small tubercles, the ventral face with four smaller spines, flexor face of hind tibiae denticulate. Halteres with yellow stem and black knob. Wings nearly hyaline, apex smoky, veins coarse and blackish, root of fourth vein and anal vein faint, stigma large, black, filling the wide end of the marginal cell abruptly limited opposite posterior crossvein, third and fourth veins parallel, discal cell rather large, sections of fifth vein 1 : 0.6.

Female. Similar to male.

Mt. Makling, Luzon, C. F. Baker, fourteen specimens. Additional specimens were included in the sending but were destroyed by a dermestid larva during transit.

(2) *Syneches ater*, nov. sp. — Male. Length 3.5 mm. Black, velutinous, only the proboscis, knees narrowly, extreme tips of the tibiae and base of the anterior tarsi brownish-yellow, and the legs a little shining. Wings heavily infumated, the costal and marginal cells even darker, marginal cell as broad as the submarginal opposite the end of the first vein, third and fourth veins parallel beyond the discal cell. Thorax strongly convex, scutellum with about ten marginal hairs. Hind femora slender, pubescent, not spinose but with two long hair-like bristles below, hind tibiae closely pubescent. The insect has the form and proportions of *phthia*.

A single specimen: Hazleton, Pennsylvania, received from Dr. Dietz, who collected it June 28, 1912. The species is readily recognizable by its dark body, wings and legs. The only other American species with dark legs and wings is *albonotatus* Loew, which has the thorax marked with white pollinose spots and the abdomen overlaid with brown pollen.

(3) *Syneches barypterus*, nov. sp. — Female. Length 4 mm. Black, including antennae, coxae, most of hind legs, knob of halteres, veins and stigma; the tip of proboscis, root of wings and of halteres, anterior legs beyond the coxae, basal one-half of hind femora and basal fourth of hind tibiae yellowish. Third antennal joint short oval, subequal to second joint, the arista three times the antennal length. Thorax shining, one dorsocentral and one pair apical scutellar bristles, ten fine long marginal hairs on scutellum. Abdomen long and narrow, much surpassing the hind femora, its hairs pale on basal part and becoming dark on apical segments, middle tibiae with two extremely long setae at basal third and a moderate one at tip, hind femora relatively slender, beneath with seven setae of which the proximal four are widely spaced, long and

6. *S. Bigoti*, Bezzi, Ann. Mus. Hungar, Vol. 2, p. 360 (1904), Vol. 10, India.
p. 456 (1912); Brunetti, Rec. Indian Mus. Vol. 9, p. 16 (1913);
Fauna Brit. Ind. Dipt. Vol. 1, p. 329, pl. 4, f. 3 (1920).
bicolor, Bigot (not Walker), Ann. Soc. Ent. France (6), Vol. 9, p. 127
[1889] (*Pterosphylus*); Bezzi, Ann. Mus. Hungar, Vol. 2, p. 330 (1904).
7. *S. curvineura*, nov. sp. (1). Costa Rica.
8. *S. curvipes*, Fabricius, Syst. Ant. p. 147 [1805] (*Damalis*); Wiedemann, South America.
Zool. Mag. Vol. 1, p. 1, 60, pl. 2, f. 3 [1817] (*Damalis*); Aussereurop.
Zweifl. Ins. Vol. 1, p. 537, pl. 4, f. 9 [1828] (*Hybos*); Bezzi, Nova
Acta Akad. Naturf. Halle, Vol. 91 p. 314, note 2 (1909).
9. *S. debilis*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 436 (1895); S. and E. United States.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 253 (1902).
10. *S. dichætophorus*, Bezzi, Ann. Mus. Hungar, Vol. 2, p. 330 (1904), Vol. 10, East Indies.
p. 456 (1912).
11. *S. dichogenus*, nov. sp. (2). Costa Rica.
12. *S. dichrous*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 318 (1909). Bolivia.
13. *S. duplex*, nov. sp. (3). Costa Rica.

slender, and the distal three are close-set on distinct tubercles, hind tibiæ somewhat clavate but otherwise simple, pubescence of legs conspicuous, hind metatarsi swollen and one-third as long as their tibiæ. Wings subhyaline somewhat dusky at apex, sections of costa nearly 5 : 2 : 2 : 1, stigma beyond posterior crossvein, large and completely filling end of marginal cell, second vein curving so that the submarginal cell is two-thirds the width of the marginal at base of stigma, last two sections of fourth vein subequal, of fifth vein 1 : 0.6.

Three specimens, La Suiza de Turrialba, Costa Rica, Nov. 1922, Pablo Schild.

Related to *repletus* Bezzi, but differs in that all coxæ and the hind tarsi are black and the stigma is transversely limited within.

(1) *Syneches curvineura*, nov. sp. — Length 3.5 mm. Closely related to *S. longiventris*, differing as follows: stigma larger, almost square, the marginal cell at the stigma two times as wide as the submarginal due to a pronounced curving of the second vein, veins thinner, wings subhyaline with cloudings about the anterior, posterior and anal crossveins; abdominal hairs relatively short and sparse, particularly on posterior portion of venter; thorny bristles before hind knee better developed, three or four in number.

Three males, three females, Turrialba, Costa Rica, April-August, Pablo Schild, in Melander collection.

(2) *Syneches dichogenus*, nov. sp. — Male. Length 3.3-4 mm. Occiput, knob of halteres and abdomen piceous, notum opaque blackish brown when viewed from in front, reddish brown but not cinereous when viewed from behind, antennæ, mouthparts, legs, stem of halteres, and most of pleuræ yellowish, Upper facets much smaller than ocelli, palpi linear. Mesonotum hemispherical, posteriorly not excavated, its bristles small and black, pleuræ with more or less evident piceous spots above posterior coxæ. Abdominal hairs small and sparse, valves terminal shining thin and forcipate. Leg bristles small and brownish, no inside bristle on middle tibia, the extensor bristle located at two-fifths length of middle tibia one-third as long as tibia, hind femora without dorsal bristles, with four small equidistant bristles on antero-flexor face, tarsi slender. Wings uniformly smoky, the long elliptical stigma somewhat darker and extending below ends of first and second veins, veins thin and blackish, third and fourth veins nearly parallel.

Female. Mesonotum fuscous; wings hyaline, veins brown, stigma faintly yellow.

Eighteen males, fifteen females, received from P. Schild who collected them near Turrialba, Costa Rica, during July and August 1921. Types in Melander collection.

(3) *Syneches duplex*, nov. sp. — Male. Length 4.5 mm. Related to *simplex* and *stigmaticalis* in wing structure but differing in the larger size, larger ommatidia, shortened tarsi, the thickened and not slender hind tarsi and the more bristly hind femora. Piceous brown, including antennæ, halteres and coxæ, palpi slender and yellow, proboscis and legs brownish-yellow; last joint of hind tarsi black. Upper facets nearly as large as ocelli. Thorax strongly convex, posteriorly declivous, subshining, the declivity gray when viewed from behind, but two distant vittæ, a triangular prescullar spot and supra-alar marks faintly gray when viewed from above and back, bristles and sparse hairs black. Abdomen darker apically, its basal long thin hairs yellowish to black, genitalia small and terminal, claspers bluntly triangular, not forcipate. Bristles and hairs of legs pronounced, four equidistant extensor bristles on front tibiæ, extensor bristle at two-fifths of middle tibiæ and about one-half length of tibia, a shorter preapical bristle, postero-extensor row of four bristles on middle tibiæ, middle femora with about eight bristles in each flexor row, hind femora with three stiff bristles on upper posterior face toward knee, with a row of six bristles beneath and with shorter flexor bristles, hind tibiæ with long extensor bristles at middle and before apex, hind tarsi robust, the metatarsus with closely pubescent sole and with five black spines on posterior face, third and fourth joints broader than long. Wings lightly brownish, veins brownish yellow, a diffused quadrate stigmal

14. *S. elevatus*, Bezzi, Ann. Soc. Ent. Belg. Vol. 52, p. 380 (1908). Congo.
15. *S. fratellus*, Brunetti, Rec. Indian Mus. Vol. 9, p. 18 (1913); Fauna Brit. W. Himalayas.
Ind. Dipt. Vol. 1, p. 332 (1920).
16. *S. fuliginosus*, Meijere, Tijdschr. v. Ent. Vol. 58, p. 24 (1915). Simalur.
17. *S. fuscescens*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 319 (1909). Bolivia.
18. *S. fuscipennis*, Brunetti, Fauna Brit. India, Vol. 1, p. 333 (1920). India.
19. *S. hyalinus*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 437 (1895); E. United States.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 252 (1902).
20. *S. immaculatus*, Brunetti, Rec. Indian Mus. Vol. 9, p. 18 (1913); Fauna Ceylon.
Brit. Ind. Dipt. Vol. 1, p. 328, f. 24 (1920).
21. *S. inaequalis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 19 (1913); Fauna India.
Brit. Ind. Dipt. Vol. 1, p. 330 (1920).
22. *S. insignis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 19 (1913); Fauna Brit. W. Himalayas.
Ind. Dipt. Vol. 1, p. 332, f. 25 (1920).
23. *S. lividus*, nov. sp. (1). Luzon.
24. *S. longipennis*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 346 (1902). North Carolina.
25. *S. longiventris*, nov. sp. (2). Costa Rica.
26. *S. luteus*, Wiedemann, Aussereurop. Zweifl. Ins. Pt. 2, p. 647 [1830] Brazil.
(*Hybos*); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 314 (1909).
27. *S. minutus*, Brunetti, Rec. Indian Mus. Vol. 9, p. 20 (1913); Fauna Burma.
Brit. Ind. Dipt. Vol. 1, p. 330 (1920).
28. *S. muscarius*, Fabricius, Ent. Syst. Vol. 4, p. 390 [1794] (*Asilus*); Meigen, S. & C. Europe.
Classif. Besch. Eur. Zweifl. Ins. Vol. 1, p. 271 [1804] (*Asilus*);
Coquebert, Illustr. Icon. Ins. p. 114, pl. 25, f. 12 [1804] (*Asilus*);
Fabricius, Syst. Antl. p. 151, [1805] (*Dioctria*); Latreille, Gen.
Crust. Ins. Vol. 4, p. 305 (1809); Consid. Gén. p. 443 [1810]
(*Hybos*); Meigen, Syst. Besch. Vol. 2, p. 264, pl. 21, f. 21 [1820]

spot below end of first vein, apex of marginal cell with more or less evident secondary stigmal mark, submarginal cell slightly narrower than marginal at stigma, third and fourth veins apically parallel.

Female. Facets slightly smaller, styles small and black, wings subhyaline, the stigmal spots as in male.

Two males and two females, La Suiza de Turrialba, Costa Rica, April-July, collector Pablo Schild; in Melander collection.

(1) *Syneches lividus*, nov. sp. — Male. Length 4.5 mm. Almost wholly black, the anterior femora and tarsi, root of wings and of halteres, pleural sutures, postalar callosities and tip of proboscis brownish. Third antennal joint oval, nearly two times long as wide, the subterminal arista three times antennal length; sides and lower part of occiput brown-dusted. Two fine dorsocentrals and two scutellars, about ten minute marginal hairs; mesonotum very finely dusted, subshining. Abdomen long and slender, its hairs pale, becoming blackish at apex, genitalia small. Hind femora slender, only a little thicker than their straight tibiae, underneath with seven moderate bristles, and towards the apex with four thorn-bearing flexor denticles, the usual single seta of front tibiae long and the three setae of the middle tibiae moderate; pulvilli yellowish, tips of claws black. Wings lightly infumated, darker at tip, stigma distinct, elongate oval, filling the end of the marginal cell beyond the first vein, marginal and submarginal cells of equal width, third and fourth veins gently converging, discal cell moderate, posterior crossvein opposite end of first vein, sections of fifth vein 1 : 0.7.

Three specimens, Mt. Makling, Luzon, Philippine Islands, C. F. Baker, collector.

(2) *Syneches longiventris*, nov. sp. — Male. Length 4.2 mm. Shining black with almost entirely black legs, dusky wings, black stigma and elongate abdomen. Antennae black, outer joint orbicular, the arista sub-apical, palpi and proboscis testaceous. Thorax not excessively convex, declivous but not linearly impressed posteriorly, the dorsum with inconspicuous fulvous pile, scutellum with two strong and eight weaker bristles. Legs slender, the hind femora not greatly thickened, black pilose, the anterior knees, basal fifth of hind tibiae, apical half of anterior tibiae and the anterior tarsi brownish yellow, remainder of legs shining black, hind femora loosely seriatly bristly within, on flexor surface with four long bristles and with two preapical thorns, middle tibiae with two very long bristles attached at proximal third, as in *dichatophorus* and *repletus*, each as long as the tibiae, and with additional long bristles at middle and at apex, front tibiae swollen at basal two-fifths. Abdomen slender, three times as long as the thorax, with loose long black hairs, continuing on the venter to the small pygidium. Halteres black, calypteres blackish and with black hairs. Wings smoky, veins firm and black, stigma large, filling tip of marginal cell and sharply margined within, third and fourth veins parallel.

Female. Thorns not differentiated before hind knees; styles slender and black.

One male and five females, La Suiza de Turrialba, Costa Rica, Pablo Schild collector; in Melander collection.

(*Hybos*); Macquart, Hist. Nat. Dipt. Vol. 1, p. 319 [1834] (*Hybos*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (17), p. 48 [1851] (*Hybos*); Schiner, Fauna Dipt. Aust. Vol. 1, p. 77 [1862] (*Pterospilus*); Neuhaus, Dipt. March. p. 68 [1886] (*Pterospilus*).

asiliformis, Fabricius (not Bonelli), Ent. Syst. Vol. 4, p. 395 [1794] (*Stomoxys*);

Syst. Antl. p. 282 [1805] (*Stomoxys*).

hybos, Lamarck, Hist. Nat. Anim. sans Vert. Vol. 3, p. 404 [1816] (*Asilus*).

29. *S. natalensis*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 126 [1889] S. Africa.
(*Pterospilus*).
30. *S. nebulosus*, Loew, Oefv. Vet. Akad. Förrh. Vol. 14, p. 360 (1857); Dip- S. Africa.
terenf. Südafr. Vol. 1, p. 259 (1860).
31. *S. obeliscus*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 315 (1909). Bolivia, Peru.
32. *S. palliditarsis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 18 (1913); Fauna India.
Brit. Ind. Dipt. Vol. 1, p. 331, pl. 4, f. 4 (1920).
33. *S. periscelis*, nov. sp. (1). Luzon.
34. *S. phaeopterus*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 427 (1905); Nova Peru.
Acta Akad. Naturf. Halle, Vol. 91, p. 315 (1909).
35. *S. phthia*, Walker, List. Dipt. Brit. Mus. Vol. 3, p. 492 [1849] (*Gloma*). E. North America.
— Pl. I, Fig. 4.
punctipennis, Van der Wulp, Tijdschr. Ent. Vol. 10, p. 139, pl. 3, f. 18-21 (1867).
simplex, Walker, Ins. Saunders. Dipt. Vol. 1, p. 165, pl. 5, f. 7 (1852); Loew,
Jenaische Zeitschr. Naturw. Jena, Vol. 36, p. 115 (1870); Wulp, Tijd-
schr. v. Ent. Vol. 25, p. 119 (1882); Melander, Trans. Amer. Ent. Soc.
Vol. 28, p. 254, f. 86 (1902).
36. *S. planiceps*, nov. sp. (2). Costa Rica.
37. *S. præstans*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 457, 458 (1912). Formosa.
38. *S. pusillus*, Loew, Berl. Ent. Zeitsch. Vol. 5, p. 320: Cent. 1, No 25 North America.
(1861); Williston, Trans. Ent. Soc. Lond. p. 308, pl. 11, f. 84
(1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 253 (1902).
39. *S. pyramidatus*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 428 (1905); Nova Peru.
Acta Akad. Naturf. Halle, Vol. 91, p. 315 (1909).

(1) ***Syneches periscelis***, nov. sp. — Male. Length 3.8 mm. Occiput black, cinereous below, the orbital fringe consisting of fine black hairs; antennæ yellow, the apical two-thirds of the small oval last joint brownish, the subterminal black arista four times the antennal length; mouthparts testaceous. Mesonotum subshining, testaceous, an indication of a broad median vitta on forward portion, hairs and bristles black, scutellum with two bristles and ten marginal hairs; pleuræ yellowish, shining, more or less brown on meso- and sternopleuræ. Abdomen dull black, venter yellowish, hairs black, genitalia small and closed. Front coxæ brown, posterior coxæ pale yellow, the remainder of legs testaceous with a black band encircling apical third of hind tibiæ; bristles and hairs concolorous with integument, middle tibiæ with a relatively small seta at basal third of outer side and another at apex; hind femora rather slender, not reaching to end of abdomen, with seven spines on outer inferior face of which only the distal three are pronounced, the flexor face with six small thorn-bearing tubercles along the distal third, hind tibiæ simple, a little swollen on black portion; tarsal claws with black tip, pulvilli yellowish. Halteres black, the root yellow. Wings lightly infumated, stigma obsolete, veins mainly blackish, marginal cell narrow, third and fourth veins parallel, discal cell small, anterior crossvein at its base, the first basal cell therefore shorter than the second, sections of fifth vein subequal.

Holotype, Mt. Makling, Luzon, Philippine Islands, Prof. C. F. Baker, collector.

(2) ***Syneches planiceps***, nov. sp. — Female. Length 4 - 4.5 mm. Black, the mouthparts, front tibiæ, base of hind tibiæ, all tarsi and root of halteres yellowish; thorax almost shining, the coating of golden pubescence sparse and not forming definite marks when viewed from different angles, abdomen polished, hairs and bristles of body fine, sparse and black. Bristles of front legs delicate and yellow, the strongest being at base of metatarsus, middle tibiæ with two very long black bristles at basal two-fifths in addition to other moderately long irregular delicate bristles, hind femora elongate, with eight flexor bristles in anterior row, the last six arising from pronounced tubercles, the largest measuring half the width of the femur, hind metatarsi somewhat swollen. Wings hyaline, veins narrow and black, stigma oval almost filling end of marginal cell, black, marginal and submarginal cells of equal width, first posterior cell widest opposite stigma, its bounding veins slightly converging and then becoming parallel at tip of wing; calypteres and fringe yellowish.

Six specimens secured from Pablo Schild who collected them near Turrialba, Costa Rica, during April and July. The tuberculate hind femora are suggestive of *Harpamerus*, but the distinct posterior dorsocentral bristles, the apical scutellars, the very long setæ of middle tibiæ and the relatively slender hind femora and simple tibiæ are as other species of *Syneches*, s. str.

40. *S. quadrangularis*, Wheeler & Melander, Biol. Centr. Amer. Dipt. Vol. 1, Mexico.
p. 374 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 253,
f. 85 (1902); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91,
p. 314 (1909).
41. *S. repletus*, Bezzi, ibidem, Vol. 91, p. 317 (1909). Peru.
42. *S. ruficollis*, Walker, Ins. Saunders. Dipt. Vol. 1, p. 206 [1852] (*Hybos*); Brazil.
Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 315 (1909).
43. *S. rufus*, Loew, Berl. Ent. Zeitschr. Vol. 5, p. 320 : Cent. 1, No. 24 E. United States.
(1861); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 253 (1902).
44. *S. rusticus*, Brunetti, Rec. Indian Mus. Vol. 9, p. 20 (1913); Fauna Brit. India.
Ind. Dipt. Vol. 1, p. 331 (1920).
45. *S. semibrunneus*, Meijere, Tijdschr. v. Ent. Vol. 54, p. 325 (1911). Vol. 56, Java.
supp. 68 (1913).
46. *S. stigmatalis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 316 (1909). Bolivia.
47. *S. testaceus*, nov. sp. (1). Missouri.
48. *S. thoracicus*, Say, Jour. Acad. Nat. Sc. Philad. Vol. 3, p. 76 [1823] United States.
(*Hybos*); Wiedemann, Aussereurop. Zweifl. Ins. Vol. 1, p. 538
[1828] (*Hybos*); Macquart, Dipt. Exot. Vol. 1, p. 272, pl. 13, f. 1
[1838] (*Hybos*); Say, Compl. Writ. Vol. 2, p. 68 [1859] (*Hybos*);
Glover, Manuscr. Notes 26, pl. 3, f. 21 [1874] (*Hybos*); Coquillett,
Proc. U. S. Nat. Mus. Vol. 18, p. 436 (1896); Melander, Trans.
Amer. Ent. Soc. Vol. 28, p. 254, f. 84 (1902).
49. *S. varus*, nov. sp. (2). Luzon.
50. *S. vittatus*, Walker, Trans. Ent. Soc. Lond. N. S. Vol. 5, p. 286 [1860] Natal.
(*Hybos*); Bezzi, Bull. Soc. Ent. Ital. Vol. 37, p. 294 (1906).

SUBGENUS EPICEIA, WALKER

1. *E. bicolor*, Walker (not Bigot), Proc. Linn. Soc. Lond. Vol. 3, p. 91 (1859), East Indies.
Vol. 5, p. 237 [1861] (*Hybos*); Osten-Sacken, Ann. Mus. Stor. Nat.
Genova, Vol. 16, p. 434 [1881] (*Hybos*); Kertész, Termes. Fuzet.
Vol. 22, p. 174 [1899] (*Hybos*); Bezzi, Ann. Mus. Hungar. Vol. 2,
p. 331 [1904] (*Syneches*), Vol. 10, p. 457 (1912).

(1) *Syneches testaceus*, nov. sp. — Female. Length 5.5 mm. Resembling *rufus* Loew, but the marginal cell not widened at the stigma. Entirely testaceous, including the antennæ, mouthparts, halteres and legs, but the tarsi flavous and the last two segments of the abdomen fuscous, stigma strongly brown, elliptical, nearly filling out the end of the marginal cell. Mesonotum covered with yellow tomentum but when viewed from above appearing subshining, mesopleuræ shining. Hind femora spinose beneath. Wings hyaline, veins strong and brown, marginal cell rather acutely pointed, at the stigma not much wider than the submarginal cell.

One specimen : Kansas City, Missouri, June, received from F. Rogers.

(2) *Syneches varus*, nov. sp. — Male. Length 4.5 mm. Occiput black, lightly brown pollinose except above neck; basal joints of antennæ yellow, third joint blackish, the subdorsal brown arista three times antennal length; mouthparts yellowish. Mesonotum testaceous, lightly coated with yellow dust, nearly bare of hairs, bristles black, two scutellars and ten fine marginal hairs; upper pleuræ light brown, lower yellow. Second abdominal segment testaceous, third piceous, remainder black, shining, hairs pale, genitalia rather small and forcipate, its hairs blackish, venter yellowish becoming brown posteriorly. Coxæ brown, femora black, the anterior knees lighter, anterior tibiæ and tarsi yellow, hind tibiæ brown at base remainder black, tarsi yellowish, the long seta at basal two-fifths of front tibiæ very thin, the long setæ near middle and apex of middle tibiæ not excessive; hind femora stout, the outer lower face with ten stout spines, of which the distal six arise from distinct tubercles, four smaller spines on inner lower face; hind tibiæ strongly curved, with two denticles at two-fifths and three-fourths their extent. Knob of halteres piceous. Wings narrow, hyaline, apex lightly infumated, veins brown, stigma fuliginous, detached from the gently curving second vein and abruptly cut off within, third and fourth veins parallel, discal cell moderate, the sections of fifth vein 1 : 0.8.

Holotype, Mt. Makling, Luzon, Philippine Islands, C. F. Baker, collector. The parallel-sided apical cell excludes this species from *Harpamerus*.

2. *E. deficiens*, Walker, Proc. Linn. Soc. Lond. Vol. 3, p. 129 [1859] (*Hybos*); East Indies.
Osten-Sacken, Ann. Mus. Stor. Nat. Genova, Vol. 16, p. 434 [1881]
(*Hybos*); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 332 [1904] (*Syneches*),
Vol. 10, p. 457 (1912).
3. *E. eustylata*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 126 [1889] East Indies.
(*Pterospilus*); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 332 [1904]
(*Syneches*), Vol. 10, p. 457 (1912).
4. *E. ferruginea*, Walker, Proc. Linn. Soc. Lond. Vol. 4, p. 149 (1860), East Indies.
Vol. 5, p. 283 (1861), Vol. 7, p. 209, 233 (1864); Bezzi, Ann. Mus.
Hungar. Vol. 2, p. 331, note (1904), Vol. 10, p. 457 (1912).
5. *E. helvola*, Frey, Oefv. Finska Vet. Soc. Helsingfors. Vol. 59 A, Ceylon.
No. 20, 5 (1917).
6. *E. hyaloptera*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 331 (1904), Vol. 10, New Guinea.
p. 457 (1912).
7. *E. luctifera*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 457, 458 (1912). Formosa.
8. *E. minor*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 332 (1904), Vol. 10, New Guinea.
p. 457 (1912).
9. *E. pulla*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 457, 460 (1912), Suppl. Formosa.
Ent. Berlin, Vol. 3, p. 68 (1914).
10. *E. stigma*, Walker, Proc. Linn. Soc. Lond. Vol. 8, p. 111 [1865] (*Hybos*), New Guinea.
Vol. 9, p. 15 (1865); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 333,
note (1904), Vol. 10, p. 457 (1912).

SUBGENUS HARPAMERUS, BIGOT

1. *H. Bakeri*, nov. sp. — Pl. I, Fig. 6 (1). Philippines.
2. *H. dinoscelis*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 333 (1904), Vol. 10, New Guinea, Java.
p. 457 (1912).
3. *H. signatus*, Bigot, Rev. Mag. Zool. (2), Vol. 12, p. 306 (1859); Bezzi, Ceylon.
Ann. Mus. Hungar. Vol. 10, p. 457 (1912); Brunetti, Fauna Brit.
Ind. Dipt. Vol. 1, p. 334 (1920).
4. *H. velutinus*, Meijere, Expéd. Néerl. Guinée, Vol. 5, Dipt. 79 (1906); New Guinea.
Bezzi, Ann. Mus. Hungar. Vol. 10, p. 457 (1912).

10. GENUS PARAHYBOS, KERTÉSZ

Parahybos, Kertész, Termes. Fuezet. Vol. 22, p. 176 (1899); Bezzi, Ann. Mus. Hungar. Vol. 2,
p. 321 (1904), Vol. 5, p. 565, note (1907); Kertész, Cat. Dipt. Vol. 6, p. 8 (1909); Bezzi, Ann.
Mus. Hungar. Vol. 10, p. 456 (1912); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 343 (1920).

Acarterus auctorum, Meijere, Tijdschr. v. Ent. Vol. 54, p. 328 (1911); Brunetti, Fauna Brit. Ind.
Dipt. Vol. 1, p. 334 (1920).

(1) **Syneches (Harpamerus) Bakeri**, nov. sp. (Pl. I, Fig. 6). — Male. Length 6.5 mm. Black, dull. Upper facets but slightly larger than lower ones; face pollinose black; occiput silky black; basal two joints of antennæ yellowish, third joint elliptical, two and one-half times long as deep, black except at extreme base, arista black, three times length of antennæ; palpi black, proboscis piceous. Humeri and scutellum reddish, twelve marginal scutellar black bristles; middle of pleuræ shining; hairs of posterior notum long and black. Abdomen much depressed, yellowish at base, genitalia small. Anterior legs including coxæ yellowish, tarsi apically dusky, hairs mainly yellowish, hind legs entirely black, hind coxæ swollen, hind femora hairy, incrassate, beneath in an anterior row with five very large setigerous prongs, the outermost of which is longer than the diameter of the femora, posteriorly with two smaller prongs, hind tibiæ slender, strongly curved, four-fifths length of femora, tarsi closely hairy. Halteres, calypteres and fringe yellowish. Wings blackish, becoming less dark posteriorly, fourth vein rounding toward tip.

Holotype, received from Prof. C. F. Baker who sent it as the most curious fly he had ever seen, Kolambugan, Mindanao, Philippine Islands.

Characters. — Thorax very strongly convex, subopaque, eyes separated on the face, arista often subdorsal, hind femora not setose, slender, no longer than their tibiae, middle tarsi of the male sometimes deformed, pygidium bilateral. Head hemispherical; proboscis horizontally porrect, as long as the head, slender and pointed, palpi small; eyes with a horizontal line through the middle, but the upper facets not abruptly enlarged. Thorax without bristles except laterally, scutellum with several fine marginal hairs but no bristles; abdomen of the male somewhat upturned at the end, of the female tapering. Legs slender, often bearing curious bunches of hairs in the male sex, no extremely long tibial setae such as in *Syneches*, underside of the hind femora completely unarmed, middle tarsi of male often shortened and distorted. Wings not large, stigma weak or absent, first posterior cell narrower in the margin than opposite the posterior crossvein, discal cell elongate, no alula.

Type of the genus : *P. iridipennis* Kertész, the original species. The genus *Parahybos* includes Oriental species only. For a time it was considered as a very close relative of *Acarterus*, the latter name being used for those species with subdorsal arista. As the recent discovery of additional species showed that this character was too elusive to use, the name *Parahybos* was dropped. However, as explained under the genus *Acarterus*, it seems that there has been a misconception of the African genus, and in the present paper all the Oriental species are grouped together under the name *Parahybos*.

Geographical distribution.

1. *P. chatoproctus*, Bezzi, Ann. Mus. Hungar, Vol. 5, p. 565 (1907), Vol. 10, p. 458, 463, f. 1 (1912), Suppl. Ent. Berlin, Vol. 3, p. 68 (1914). Formosa.
2. *P. chiragra*, Bezzi, Ann. Mus. Hungar, Vol. 10, p. 458, 463, f. 2 (1912), Suppl. Ent. Berlin, Vol. 3, p. 68 (1914). — Pl. I, Fig. 7. Formosa
3. *P. flavipes*, Brunetti, Rec. Indian Mus. Vol. 9, p. 21 (1913); Fauna Brit. Ind. Dipt. Vol. 1, p. 343 (1920). India.
4. *P. fuscipennis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 21 [1913] (*Acarterus*); Fauna Brit. Ind. Dipt. Vol. 1, p. 335, pl. 4, f. 5 [1920] (*Acarterus*). Ceylon.
5. *P. incertus*, Bezzi, Ann. Mus. Hungar, Vol. 10, p. 458 (1912). Formosa.
6. *P. infuscatus*, Meijere, Tijdschr. v. Entom. Vol. 54, p. 326 (1911), Vol. 56, Suppl. 71 (1914). Java.
7. *P. iridipennis*, Kertész, Termes. Fuzet, Vol. 22, p. 176 (1899); Wulp, Tijdschr. v. Ent. Vol. 42, p. 49 (1899); Bezzi, Ann. Mus. Hungar, Vol. 2, p. 336 (1904), Vol. 10, p. 457 (1912); Collin, Ent. Mo. Mag. 699, p. 186 (1922). New Guinea.
8. *P. luteicornis*, Frey, Oefv. Finska Vet. Soc. Helsingfors, Vol. 59, A, n° 20, p. 6 (1917). Ceylon.
9. *P. melas*, Bezzi, Ann. Mus. Hungar, Vol. 10, p. 458, 461 (1912). Formosa.
10. *P. orientalis*, Meijere, Tijdschr. v. Ent. Vol. 50, p. 250, pl. 6, f. 17 [1907] (*Acarterus*); Bezzi, Ann. Mus. Hungar, Vol. 10, p. 456, 458 (1912); Meijere, Tijdschr. v. Ent. Vol. 56, Suppl. 71 (1914). Java.
11. *P. ornatipes*, Meijere, Tijdschr. v. Ent. Vol. 56, Suppl. 69, pl. 2, f. 8 (1914). Java.
12. *P. pallipes*, Bezzi, Ann. Mus. Hungar, Vol. 2, p. 335 [1904] (*Acarterus*), Vol. 5, p. 566, note (1907); Meijere, Tijdschr. v. Ent. Vol. 50, p. 251 [1907] (*Acarterus*). Vol. 54, p. 328 (1911); Bezzi, Ann. Mus. Hungar, Vol. 10, p. 458 (1912); Brunetti, Fauna Brit. Ind. Vol. 1, p. 335 [1920] (*Acarterus*). India.
13. *P. pusillus*, Meijere, Tijdschr. v. Ent. Vol. 54, p. 327 (1911), Vol. 56, Suppl. 71 (1914). Java.
14. *P. Sauteri*, Bezzi, Ann. Mus. Hungar, Vol. 10, p. 458, 464, f. 3 (1912); Suppl. Ent. Berlin, Vol. 3, p. 68, 69 (1914). Formosa.
15. *P. simplicipes*, Bezzi, Ann. Mus. Hungar, Vol. 10, p. 458, 462 (1912). Formosa.

11. GENUS MEGHYPERUS, LOEW

Meghyperus, Loew, Stettin Ent. Zeit. Vol. 11, p. 303 (1850); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 560 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 78 (1862); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 118 [1889] (*Meghyperus*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 255 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 253, 259 (1903); Melander, Williston's Man. Dipt. N. Amer. 3 ed. p. 224 (1908); Kertész, Cat. Dipt. Vol. 6, p. 2 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 566, (1910).

Characters. — Small shining black species with forked fourth vein, conical style-bearing outer antennal joint and well developed alula. Head globular, eyes of the male contiguous from the antennæ to the vertex, facets of the lowest third minute, eyes of the female broadly separated, the front shining, face short, cheeks very narrow; proboscis of *sudeticus* short, but in the American species the proboscis of the male slender, projecting horizontally forward, slightly longer than the head, the palpi linear elongate and porrect, and of the female the proboscis three times as long as the head, porrect, tipped with a distinct labella, the palpi short and clavate, attached to the proboscis near its base; antennæ two-jointed, the thickened style of the outer joint in the American species slightly less than one-half the length of that joint and tipped with a minute bristle, but in *sudeticus* the style is aristiform, tapering and longer than the antennæ. Mesonotum moderately arched, its hairs roughly arranged in acrostichal and dorsocentral rows, the hindermost dorsocentrals bristle-like, no hairs on the posterior declivity, about six marginal scutellar bristles, three notopleurals; pleuræ entirely pollinose and bare. Abdomen with loose long white hairs; male abdomen cylindrical, pygidium small, bilateral, the lateral valves fleshy and reniform; female abdomen tapering and less hairy. Anterior legs slender, no bristles, hind femora scarcely thickened and not at all spinose, hind tibiæ somewhat clavate, particularly in the male, hind metatarsi somewhat swollen, pulvilli small. Wings hyaline, a more or less distinct oval stigma surrounding the end of the first vein, veins strong, costa straight, continuing to the anterior branch of the fourth vein, basal bristle small, costal hairs poorly developed, auxiliary vein distinctly separated from the first vein and vanishing at its end, third vein simple, petiole of the fourth vein as long as or longer than the posterior crossvein, basal and anal cells coextensive, anal crossvein rounded so as sometimes to meet the anal vein at a right angle, anal angle of the wing prominent, rectangular, alula of male much larger than that of the female.

Type species : *M. sudeticus*, the original species. The genus is interesting in the kind of sexual dimorphism it displays; the broad front of the female, her lengthened proboscis and shortened palpi and the difference in the size of the alula are unique in the Hybotinæ. The European *sudeticus* differs rather strangely from the American species in having a very short proboscis, a lengthened arista and, in the female, a bulbous face.

Geographical distribution.

1. *M. nitidus*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 255, pl. 7, f. 72, W. United States. 73 (1902).
2. *M. occidentis*, Coquillett, Proc. U. S. Nat. Mus. 18, p. 435 (1896); Melander, W. United States. Trans. Amer. Ent. Soc. Vol. 28, p. 255 (1902). — **Pl. 5, Fig. 40.**
3. *M. sudeticus*, Loew, Stettin. Ent. Zeit. Vol. 11, p. 303, pl. 1, fig. 40, 42 C. Europe. (1850); Schiner, Fauna Dipt. Austr. Vol. 1, p. 78 (1862).

12. GENUS *IRONOMYIA*, WHITE

Ironomyia, White, Pap. Proc. Roy. Soc. Tasmania, 1916, p. 216 (1917).

Characters. — Head broader than the thorax; eyes of male contiguous; proboscis scarcely projecting, palpi rounded and shorter than the proboscis; antennæ about one-fourth the length of the head, the first joint hardly distinguishable, the second a little longer than broad, the third rounded, arista thread-like, about twice the antennal length. Thorax only slightly arched, with a few weak posterior bristles, scutellum with weak marginal bristles. Abdomen short conical, male genitalia inconspicuous. Legs short, practically bare, tibiæ and tarsi subequal, tibiæ thin at the base, gradually thickening to the apex, unguis unusually large, three equal bristles between the well developed pulvilli. Wings broad, costa convex and serrated, auxiliary fused with first vein, which is long, reaching to the sharply defined stigma, second vein unusually long, at first well separated from the third after which the two veins converge, almost meeting below the stigma, and then slightly diverge, reaching the margin close together a little above the wing-tip, third vein unforked, discal cell long, emitting three veins, four posterior cells, the three basal cells short, the first a fraction longer than the second, the anal cell a little longer than the first, hind angle of wing strongly developed.

Genotype: *I. nigromaculata*, White, the only known species of this curious genus. This species is black, with abdomen centrally gray but marked with a dorsal row of black spots and was taken on a tree trunk in Tasmania.

Geographical distribution.

1. *I. nigromaculata*, White, Pap. Proc. Roy. Soc. Tasmania, 1916, p. 217, Tasmania.
f. 39 (1917). — Pl. 8, Fig. 86.

13. GENUS *SCIADOCERA*, WHITE

Sciadocera, White, Pap. Proc. Roy. Soc. Tasmania, 1916, p. 218 (1917).

Characters. — Head placed low down below the greatly arched thorax; eyes of female very widely separated; proboscis concealed within the oval aperture; antennæ so short that the very large, almost quadrangular terminal joint seems to lie directly against the face, the third joints of the two antennæ touching on the inner margin and reaching to the eyes on the outer margin, covering the face and completely concealing the preceding joints, arista thread-like; front with six stiff bristles — a divergent pair at the center of the vertex, a single one on each side close to the eyes, and one lower down above each antenna. Thorax with three complete rows of small dorsal bristles and well marked humeral, posthumeral, notopleural, supra-alar and postalar bristles, scutellum with four long marginal bristles. Abdomen about equal in breadth to, but a little longer than the thorax, altogether without bristles. Legs of medium length, bearing a few bristles, coxæ considerably lengthened. Wings large, unusually broad, the costa strongly convex, auxiliary vein fused with the first vein, which ends at middle of wing, third vein not forked, discal cell open above and outwardly, four posterior cells indicated at the margins, the first two posterior veins incomplete basally, basal cells short, equal, anal cell a little shorter, no stigma.

Genotype: *S. rufomaculata*, White, the only known species. This is a yellowish-brown insect, four millimeters in length, with the black abdomen marked with four pairs of orange-red spots.

Geographical distribution.

1. *S. rufomaculata*, White, Proc. Roy. Soc. Tasmania, 1916, p. 219, f. 40 (1917). Tasmania.

SUBFAMILY OCYDROMIINÆ

Characters. — Small, delicate species, usually with shining body and yellow legs, bristles never strongly developed: thorax rarely very gibbous, shorter than the narrow cylindrical abdomen. Head more or less globular, rarely somewhat hemispherical; eyes never hairy, of the males broadly contiguous on the front (except in *Leptometopiella*), the facets of the upper two-thirds usually large, sometimes the eyes are contiguous in the females also (e. g. *Leptopeza*, etc.) in which case they meet on the face as well; antennæ often elongate due to a tendency toward enlargement of the third joint, the first joint usually abortive or fused with the second, sometimes (*Edalea*) the third joint is remarkably lengthened, sometimes (*Anthalia*) this joint is broadly orbicular; the antennæ terminate in a long bare filiform arista, subdorsal in *Ocydromia*, or in a short, thickened two-jointed style, the latter rarely may be entirely absent; proboscis usually very short, scarcely protruding, sometimes as long as the head and more or less porrect; palpi small, single-jointed, usually narrowly cylindrical and with a few setæ, rarely the palpi are dilated; ocellar tubercle prominent in the male and then located on the very summit of the head, in dichoptic females the ocelli are not raised and are placed in front of the vertex; ocellar, vertical and occipital bristles never strongly developed although present. Thorax without discal bristles, the lateral bristles comprising a few notopleural, humeral, postalar and prescutellar bristles, several marginal but no discal bristles to the scutellum; pleuræ always devoid of bristles, but in *Leptopeza*, etc., somewhat villose in front of the metathoracic spiracle. Abdomen of the male with loose long fine hairs, pygidium small to minute, symmetrical, closed, the lateral valves largest, the dorsal valves reduced; represented by filament-like appendages, penis short and thick; an ovipositor usually developed from the last three or four segments. Legs typically slender and simple, sometimes (*Edalea*, *Scelolabes*) there is a tendency for the hind legs to become raptorial similar to the parallel development in the Hybotinæ; coxæ never lengthened, tibiæ without bristles, except in *Leptopeza* and *Hoplopeza*, tarsi normal, pulvilli small, empodium microscopic. Calypteres very small but with a well developed fringe. Wings large, anal angle prominent and rectangular, except in *Leptometopiella*, no alula, costa evanescent beyond the fourth vein, the hind margin of the wing never thickened, basal bristle of costa usually present, marginal hairs weak, no setulæ; auxiliary vein rather weak, straight, parallel with and close to the first vein, evanescent before its end, first vein ending between three-fifths and three-fourth the wing-length, pedicel of the second and third vein arising over the basal half of the second basal cell, except in *Stenoproctus*, third vein always simple, discal cell large, located near the middle of the wing, complete or rarely opening into the third posterior cell, intercalary vein present except in *Stenoproctus* and *Scelolabes*, sometimes the fourth vein is lacking beyond the discal cell (*Leptopeza*, etc.) in which case the intercalary vein functions as the fourth vein; basal cells subequal in length, of moderate size, never very short or very long, the second basal sometimes broader than the first; anal cell shorter than the basals, truncate apically, the anal crossvein reflexed, nearly straight and abruptly meeting the anal vein, the latter always faint but often attaining the wing-margin.

This group is an offshoot of the Hybotinæ. It is quite probable that some ancestral form in the Ocydromiinae was responsible for the Tachydromiinae, and that of the modern genera *Trichina*, or better still, *Allanthalia pallida*, is structurally nearest to that form.

SYNOPSIS OF THE GENERA OF THE OCYDROMIINÆ

- A. Discal cell emitting three simple posterior veins, rarely the discal cell open in which case the intercalary vein is joined to the fourth, first vein ending near three-fifths the wing-length, stigma usually dis-

- linct; females dichoptic, male eyes meeting on the front only; antennæ with a style; middle tibiæ without bristles, hind femora ciliate with erect hairs* 2.
- B. Discal cell emitting only two posterior veins, the fourth vein obsolete, first vein ending at three-fourths the wing-length, costa evanescent beyond third vein; eyes of both sexes contiguous on the face and usually on the front as well; antennæ with a lengthened arista; proboscis and palpi very small 7.
- C. Discal cell emitting only two posterior veins, the intercalary vein wanting; antennæ with short arista; proboscis and palpi usually projecting horizontally forward; hind femora incrassate and spinose below, hind tibiæ geniculate 11.
- D. Discal cell absent, confluent with posterior cells, the anterior crossvein nearly or quite joined to the second basal cell, anal crossvein abruptly reflexed as in most Empidina; face narrow 12.
2. Hind legs slender and not spinose; basal joint of antennæ imperfect, the third joint short or long 3.
- Hind femora thickened and spinose below, hind tibiæ shortened, bowed near the knee; antennæ three-jointed, the third joint elongate, cylindrical and with a short thick style; upper facets of male eyes small, scarcely larger than the lowermost; ovipositor present. (Pl. 1, Fig. 9).* Genus *ÆDALEA*, Meigen.
3. Proboscis rigid, lengthened, directed obliquely forward, palpi linear, face not deeply excised; front of female broad; antennæ three-jointed, the third joint elongate oval; thorax shining, no post-humeral bristles; ovipositor present; second basal cell very wide, its crossvein perpendicular (Pl. 8, Fig. 82). Genus *EUTHYNEURA*, Macquart.
- Proboscis very short or moderately lengthened; basal joint of the antennæ quite vestigial; thorax often more or less pollinose, post-humeral bristles present; second basal cell not greatly widened, its crossvein oblique* 4.
4. Species measuring nearly five mm.; anal cell squarely truncate, discal cell narrow and much longer than second posterior, fourth vein interrupted, first vein ending close to second, third vein ending beyond tip of wing; third antennal joint obpyriform; proboscis retracted; thorax moderately elevated; venter of male with sparse long hairs (Eocene) Genus **PROTOÆDALEA*, Cockerell.
- Species about two mm. in length, anal crossvein more retracted so as to be in line with the crossvein of the second basal cell, discal cell about as long as the second posterior, intercalary vein sometimes interrupted but not the fourth, first vein shorter, third vein ending at wing-tip* 5.
5. Eyes of both sexes widely separated, upper facets not enlarged; antennæ lacking the style; proboscis retracted within the wide oral cavity, palpi bulbous; pygidium large and erect, ovipositor lengthened; yellow species with yellow bristles Genus *ALLANTHALIA*, nov. gen.

- Eyes of male broadly contiguous above eyes, the upper facets more or less enlarged; antennæ ending in a style; proboscis more or less projecting; pygidium not surpassing diameter of abdomen, ovipositor not lengthened. 6.
6. Antennæ located near the middle of the head, the third joint elongate; proboscis very short, not porrect; front of female narrow, face not excised to the antennæ; dorsocentral bristles usually rather well developed; pygidium relatively large. (Pl. I, Fig. 8) . . . Genus TRICHINA, Meigen.
 Antennæ located much below the middle of the head, the third joint short and very broad; proboscis short or somewhat lengthened, directed obliquely forward; front of female broad, face usually excised up to the antennæ; only the posterior two dorsocentrals distinctly differentiated; pygidium very small. Genus ANTHALIA, Zetterstedt.
7. Hind femora not thickened and not spinose, hind tibiæ not geniculate. 8.
 Hind femora thickened, spinulose and spinose below, hind tibiæ geniculate and shortened; third antennal joint slender and elongate; pedicel of second and third veins short. (Pl. 5, Fig. 43) . . . Genus SCELOLABES, Philippi.
8. Wings broad toward the base, the anal angle rectangular; discal cell shortened; eyes contiguous above and below the antennæ in both sexes; antennæ inserted at the middle of the head 9.
 Wings cuneiform, no anal angle developed, discal cell elongate, anal crossvein abortive; antennæ three-jointed 10.
9. Third antennal joint conical, the arista terminal; ovipositor ensiform; middle tibiæ with several sets of bristles. (Pl. 8, Fig. 79) . . . Genus LEPTOPEZA, Macquart.
 Third antennal joint oval, the arista subdorsal; no ovipositor; middle tibiæ with only short apical bristles. (Pl. I, Fig. 10) . . . Genus OCYDROMIA, Meigen.
10. Pedicel of the second and third veins long, anal vein incomplete; eyes separated on the front; legs simple; arista thin and bare . . . Genus LEPTOMETOPIELLA, nov. gen.
 Pedicel of the second and third veins short, anal vein complete; eyes contiguous above as well as below the antennæ; hind tibiæ with apical spines, hind metatarsi spinulose above; arista thick and pilose. Genus HOPI OPEZA, Bezzi.
11. Pedicel of the second and third veins short, first basal cell shorter than second; females dichoptic; third antennal joint conical Genus LAMACHELLA, nov. gen.
 Pedicel of the second and third veins long, arising before the middle of the basal cells, the first basal longer than the second; eyes of female contiguous above the antennæ; third antennal joint more nearly cylindrico-conical. (Pl. 5, Fig. 44) Genus STENOPROCTUS, Loew.
12. Basal cells attaining middle of wing, second vein ending at two-thirds wing-length, sections of third vein proportioned 1 : 4, crossveins distinctly separated on fourth vein, intercalary vein entirely wanting; arista lengthened; thorax gibbous, without bristles but pubescent; legs long and slender, the front femora thickened basally. (Tertiary) Genus *ELECTROCYRTOMA, Cockerell.
 Anterior crossvein located very close to origin of third vein and nearly or quite touching the basal crossvein, second vein ending toward tip of wing, fourth and intercalary veins interrupted proximally,

- auxiliary vein separate from first; hind legs strongest, the anterior femora not thickened; thorax gibbous* 13.
13. *Hind legs not raptorial*. (Pl. 5, Fig. 46; Pl. 8, Fig. 72). Genus *BICELLARIA*, Macquart.
- Hind femora much thickened, spinose, hind tibiae geniculate*. (Pl. 2, Fig. 11). Genus *HOPLOCYRTOMA*, nov. gen.

I. GENUS *EUTHYNEURA*, MACQUART

- Euthyneura***, Macquart, Ann. Soc. Ent. France (1), Vol. 5, p. 517 [1836] (*Euthyneura*); Walker, Ins. Brit. Dipt. Vol. 1, p. 111 (1851); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 559 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 82 (1862); Loew, Besch. Eur. Dipt. Vol. 2, p. 250, note (1871); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 117 (1889); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 256, 347 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 250, 260 (1903); Melander, Williston's Man. N. Amer. Dipt. 3 ed. p. 225 (1908); Kertész, Cat. Dipt. Vol. 6, p. 109 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 543 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 209 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 43, 102 (1910).
- Anthalia***, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 246 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 507 (1910).

Characters. — Small, rather slender, shining black species with yellow legs, the abdomen sometimes pruinose. Head globular, as broad as the thorax, eyes bare, of the male broadly contiguous on the front, the upper facets enlarged or not, eyes of the female widely separated; face short, excised by the oral opening but the excision not reaching to the antennæ, cheeks obliterated or narrow; ocellar triangle of the male prominent, vertical and ocellar bristles not pronounced; antennæ inserted low down on the head, lengthened, plainly three-jointed, the last joint large, compressed, conical, with a short terminal style; proboscis as long as or longer than the head, rigid, projecting obliquely downward, palpi elongate and setose. Thorax not gibbous, bristles not pronounced, no posthumeral, one strong notopleural, one dorsocentral, several scutellars; pleuræ shining. Abdomen of male cylindrical, furnished with long hairs, pygidium moderate, comprising a tumid basal part and thick lateral valves clasping the stout penis; of the female the abdomen is tapering, the last segments elongated to form a slender ovipositor. Legs simple, slender, bristleless, hind femora ciliate above. Wings large, sometimes clouded, costa vanishing beyond the fourth vein, its basal bristle present, auxiliary vein weak and evanescent, extending close to the first, the first vein ending at three-fifths the wing-length, discal cell large, located at the middle of the wing, emitting three posterior veins, sometimes open, in which case the fourth vein is furcate, basal cells elongate, the second basal broad and shorter than the first since its crossvein is nearly perpendicular, anal crossvein reflexed, abruptly meeting the nearly complete anal vein.

Type species: *E. myrtilli* (Pl. 8, Fig. 82), Macquart's only species. As noted under *Anthalia*, Coquillett would make *Gyllenhalli* the type of that genus, thus drawing *Anthalia* into the synonymy.

SYNOPSIS OF THE AMERICAN SPECIES OF *EUTHYNEURA*

1. Body black 2.
Body yellow, a middle dark vitta on mesonotum (Alaska). *E. CROCATA*, Coquillett.
2. Discal cell open, the fourth vein long petiolate, wings opalescent, stigma
almost obsolete 3.
Discal cell normally closed; wings hyaline; abdomen shining black 4.

3. Abdomen of male silvery pruinose; hairs of legs and pygidium pale. (Or., Ida., Col.) *E. ARGYRIA*, nov. sp.
 Abdomen black; hairs of legs and pygidium black. (N. Mex.) *E. APERTA*, Melander.
4. Hind femora apically blackened and with flexor thorns near the knee; halteres of male with dark knob; third antennal joint short and broad. (Ida., Wash.) *E. SPINIPES*, nov. sp.
 Hind femora not blackened about the knee nor with thorns 5.
5. Stigma, veins, thoracic bristles, halteres and tarsi blackish; third antennal joint more than twice as long as wide. (Wash.) *E. MATURA*, nov. sp.
 Stigma, veins, halteres and tarsi pale; third antennal joint less than twice as long as wide. (Ont., Mass., N. H., Pa., Md., Mich., Wisc., Mo., Ida.) *E. BUCINATOR*, Melander.

Geographical distribution.

1. *E. aperta*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 348 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263 [1903] (*Microphorus*). New Mexico.
2. *E. argyria*, nov. sp. (1). Idaho, Oregon.
3. *E. brevipes*, Loew, Bemerk. Posen. Gegend Art. Zweifl. Gatt. 1840, p. 22, f. 28-30 [1840] (*Hemerodromia*), Oken, Isis, Encycl. Zeitschr. Leipzig, Vol. 7, p. 550, f. 28-30 [1840] (*Hemerodromia*); Wien. Ent. Monatschr. Vol. 8, p. 255 [1864] (*Hemerodromia*).
gracilipes, Schiner, Fauna Dipt. Austr. Vol. 1, p. 83, no desc. [1862] (*Hemerodromia*). C. Europe.
4. *E. bucinator*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 348 (1902). North America.
5. *E. crocota*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 413 [1900] (*Microphorus*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 257 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263 [1903] (*Microphorus*). Alaska.
6. *E. Gyllenhali*, Zetterstedt, Fauna Ins. Lappon. p. 538 [1838] (*Anthalia*); Dipt. Scand. Vol. 1, p. 249 [1842] (*Anthalia*), Vol. 8, p. 2998 [1849] (*Anthalia*); Scholz, Zeitschr. Ent. Breslau. Vol. 5, p. 19, 50 [1851] (*Anthalia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 79 [1862] (*Anthalia*); Lundbeck, Dipt. Dan. Vol. 3, p. 211, f. 86, 87 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 80 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 60 (1913). N. and C. Europe.
7. *E. immatura*, Zetterstedt, Dipt. Scand. Vol. 13, p. 4981 (1859). Scania.
8. *E. matura*, nov. sp. (2). Washington.

(1) *Euthyneura argyria*, nov. sp. — Male. Length 2 mm. Black, abdomen silvery pruinose, legs brownish. Upper facets larger than lowermost; proboscis porrect, nearly as long as height of head, palpi small and black; antennæ with third joint compressed, conical, twice as long as deep, with fine white pubescence, style one-fourth as long as the third joint. Thorax polished, slightly dusted in front of wings, its sparse hairs and fine bristles white, six scutellars. Abdomen with long loose white hairs, the narrow sternites not pruinose, pygidium minute. Legs simple, hairs pale. Halteres white. Wings opalescent, veins white, stigma almost obsolete, discal cell open apically, the fourth vein forked midway its length.

Female. Front broad, at ocelli wider than length of third antennal joint, facets uniform; bristles and veins yellow, wings not opalescent; abdomen not pruinose.

Seven specimens. Mt. Hood, Oregon, elevation 6000 feet, July 30, 1922; Moscow Mountain, Idaho, June 29, 1918 (Melander); Colorado (F. C. Baker.)

(2) *Euthyneura matura*, nov. sp. — Male. Length 3 mm. Black, legs brownish, veins and stigma strong. Upper facets large; third antennal joint long, bluntly lanceolate, two and one-half times long as deep, velvety with microscopic pale hairs, style minute one-third as long as width of third joint; proboscis projecting obliquely forward nearly as much as head-height, palpi slender and black. Thorax polished, sparingly pollinose above the notopleural suture and posteriorly, the fine scattering hairs and the bristles blackish, six scutellars. Abdomen shining black, its hairs pale at base and black at apex, pygidium small. Coxæ and legs yellowish brown, the posterior tibiæ and all

9. *E. myrtilli*, Macquart, Ann. Soc. Ent. France (1), Vol. 5, p. 519, pl. 15, A. N. and C. Europe.
f. 1-4 (1836); Walker, Ins. Brit. Vol. 1, p. 111, pl. 4, f. 3 (1851);
Schiner, Fauna Dipt. Austr. Vol. 1, p. 82 (1862); Loew, Syst. Besch.
Vol. 2, p. 251, note 2 (1871); Beling, Arch. Naturg. Berlin, Vol. 48,
p. 234 (1882); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz,
Vol. 29, p. 96 (1893); Wahlgren, Ent. Tidskr. Vol. 31, p. 80 (1910);
Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 61 (1913). —
Pl. 8, Fig. 82.
albipennis, Zetterstedt Dipt. Scand. Vol. 1, p. 250 (1842).
var. *incompleta*, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 34, p. 208 C. Europe.
(1898).
10. *E. simillima*, Strobl, ibidem, Vol. 29, p. 97 (1893), Vol. 34, p. 208 (1898). C. Europe.
11. *E. spinipes*, nov. sp. (1). Western North America.

2. GENUS TRICHINA, MEIGEN.

Trichina, Meigen, Syst. Besch. Vol. 6, p. 335 (1830), not Owen [1835] (*Nemathelminthes*), not Kirby, [1837] (*Coleoptera*); Zetterstedt, Fauna Ins. Lappon. p. 539 (1838); Rondani, Dipt. Ital. Vol. 1, p. 152 (1856); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 35 (1864); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 258 (1903); Melander, Williston, Man. N. Amer. Dipt. 3 ed. p. 225 (1908); Kertész, Cat. Dipt. Vol. 6, p. 100 (1909); Lundbeck, Dipt. Dan. Vol. 3, p. 184 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 43, 77 (1910).

Characters. — Small, slender, shining or subshining black species. Eyes of the male broadly contiguous above the antennæ, subcontiguous on the face, the upper facets large, of the female narrowly separated on both the front and the face; oral opening small and not encroaching on the face, proboscis very small, vertical, not protruding. palpi short and with a subapical hair; antennæ located near the middle of the head, elongate, imperfectly three-jointed, the last joint elongate, rather slender and tipped with a short two-jointed style; vertical and ocellar bristles small. Thorax moderately arched, bristles fine but rather long, humeral, posthumeral, notopleural, dorsocentral and scutellar bristles present,

tarsi blackish, hairs of femora and tibiæ pale, no bristles. Halteres blackish. Wings hyaline, stigma pronounced but not at all filling end of marginal cell, veins strong and brown, discal cell broad and short, the sections of the fourth vein proportioned about 5 : 1 : 5 : 7, intercalary vein weak at tip.

Seven specimens, all males, from Valleyford, Wash., 19 June 1919.

(1) *Euthyneura spinipes*, nov. sp. — Male. Length 2.2 mm. Body polished black, its sparse hairs and bristles yellow, legs including the coxæ pale yellow, the distal third of the hind femora, tibiæ and tarsi blackened, the hind femora apically black-setose. Upper facets large; antennæ black and pubescent, the third joint broadly oval, one-third longer than wide, the underside apically concave, the style one-third as long as the third joint; proboscis projecting obliquely forward about as far as the length of the head, palpi shining and furnished with a few long black hairs; occiput very lightly dusted, its sparse hairs black. Scutellum with four bristles. Hairs of the abdomen sparse and pale, pygidium minute. Hairs of the legs pale, extensor cilia of the hind femora equal to the diameter of the femur, about five black thorn-like setæ before the knee on the anterior side and three on the posterior side beneath. Halteres blackish. Wings slender, veins narrow and dark, a diffused stigma around the end of the first vein, discal cell as long as the wide second basal, emitting three complete posterior veins, its basal crossvein nearly perpendicular, sections of the fourth vein proportioned 1 : 0.2 : 0.9 : 1.2, of the fifth vein, 1 : 0.5 : 0.9 : 0.8, anal vein faint.

Female. Eyes separated, facets uniform; proboscis more nearly vertical; abdomen with conical apex, the last segment forming a lengthened ovipositor; halteres pale yellow.

Numerous specimens, Moscow Mountain and Lookout Mountain, Idaho, June, July; Mount Spokane, Washington; one specimen, Kaslo, British Columbia (U. S. N. M.). The species is distinct from *bucinator*, with which it cohabits, by the color and spines of the hind legs. The latter species is closely related to *myrtilli*, but has a shorter third antennal joint. Western specimens of *bucinator* have the hairs and bristles of the thorax invariably yellow, in Eastern specimens the bristles are almost always black.

discal setulæ almost wanting; pleuræ usually largely shining. Abdomen cylindrical, loosely hairy, pygidium of moderate size, often spinulose at the apex, no drawn-out ovipositor. Legs rather slender, simple, the hind tibiæ sometimes clavate, no true bristles, the hind femora ciliate with erect hairs. Wings large, anal angle prominently projecting, rectangular, costa evanescent beyond the fourth vein, with a basal bristle and rather weak marginal hairs, auxiliary vein extending close to the first which ends at three-fifths the wing-length, discal cell large, placed in the middle of the wing, emitting three posterior veins, basal cells large, subequal, anal crossvein reflexed, abruptly meeting the nearly complete but faint anal vein.

Type species: *T. clavipes*, Meigen (Pl. I, Fig. 8).

The name *Trichina* was used by Owen for the well-known genus of roundworms and as the Dipterous genus was neglected and of no economic importance the homonym has unfortunately come into general usage. This has resulted in a score of names connected with the roundworm disease, such as Trichinosis, Trichinotic, Trichiniferous, Trichinoscope, etc. Loew, in 1864, suggested that Dipterists concede Meigen's right of priority and change the Empid name, but Railliet in 1895 adopted an easier solution of the difficulty by proposing the term *Trichinella* for the conflicting Nematode.

KEY TO NORTH AMERICAN SPECIES OF TRICHINA

1. Third antennal joint subcylindrical, much longer than the style 2.
 Third antennal joint more or less conical, subequal to the style 3.
2. Pleuræ pollinose; pygidium small, side parts rounded; legs black; 8 scutellars (Cal.) *T. ATRIPES*, Melander.
 Pleuræ polished; side pieces of pygidium terminating above in a strong jet-black claw; legs fuscous; 6 scutellars (Mo.) *T. NITIDA*, nov. sp.
3. Legs wholly black; scutellum with 8 or 10 bristles. 4.
 Legs largely yellowish; scutellum with 4 or 6 bristles. 5.
4. Wings pale at base, brownish on apical half; acrostichals bristle-like; side pieces of pygidium terminating posteriorly in a pecten. (Cal.) *T. BASALIS*, nov. sp.
 Wings uniformly dusky; acrostichals not prominent; side pieces of pygidium ending in a finger-like process at the base of which is a reduced pecten (Wash., Mont.) *T. PULLATA*, nov. sp.
5. Stigma filling end of marginal cell; scutellum with four bristles; front of female about as broad as last antennal joint. (Ont., Me., Mass., N. Y.) *T. NURA*, Melander.
 Stigma not filling end of marginal cell; 6 scutellars; front of female very narrow. (Eur., Me.) *T. FLAVIPES*, Meigen.

Geographical distribution.

1. *T. atripes*, Melander, Trans. Am. Ent. Soc. Vol. 28, p. 349 [1902] (*Euthy-neura*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263 [1903] (*Microphorus*). Western United States.
2. *T. basalis*, nov. sp. (1). California.

(1) *Trichina basalis*, nov. sp. — Male. Length 2 mm. Black, subopaque, completely coated with pollen which is brown on the thorax and gray on the abdomen. Upper facets large, antennæ inserted below the middle of the head, face relatively broad and excised midway to the antennæ; proboscis very short; antennæ with the third joint compressed conical, twice as long as wide and twice as long as the style; ocellar hairs short. Two posthumeral, three notopleural, eight scutellar, nine dorsocentral and four small supraalar bristles, a median double row of five

3. *T. clavipes*, Meigen, Syst. Besch. Vol. 6, p. 336 (1830); Haliday, Ent. Mag. London, Vol. 1, p. 158 (1833); Macquart, Hist. Nat. Dipt. Vol. 1, p. 346 [1834] (*Microphorus*); Zetterstedt, Dipt. Scand. Vol. 1, p. 254 [1842] (*Microphora*); Walker, List. Dipt. Vol. 3, p. 488 [1842] (*Microphorus*); Scholz, Zeitschr. Ent. Breslau, Vol. 5, p. 50 [1851] (*Microphora*); Walker, Ins. Brit. Dipt. Vol. 1, p. 114, pl. 4. f. 5 [1851] (*Microphorus*); Bonsdorff, Finl. tväv. Ins. Vol. 1, p. 144 [1861] (*Microphora*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 79 [1862] (*Microphorus*); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 35. 40 (1864); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 133 (1887); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 93 (1892); Wien. Ent. Zeit. Vol. 18, p. 26 (1899); Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 311 (1906); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 72 (1909); Lundbeck, Dipt. Dan. Vol. 3, p. 187 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 77 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), 58 (1913).
- minuta*, Fallen (not Fabricius nor Walker) Empid. Suec. 32, p. p. [1816] (*Empis*) [see also *Cedalea flavipes* Zett.]; Zetterstedt, Fauna Ins. Lappon. p. 538 [1838] (*Cedalea*).
- ? *fallipes*, Zetterstedt, Fauna Ins. Lappon. p. 538, male only [1838] (*Cedalea*).
- var. *lissonota*, Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 144 (1899).
- var. *sexsetosa*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 58 (1913).
4. *T. elongata*, Haliday, Ent. Mag. London, Vol. 1, p. 158 (1833); Walker, List. Dipt. Brit. Mus. Vol. 3, p. 488 [1849] (*Microphorus*); Loew, Zeitschr. Ent. Breslau, Vol. 14, p. 40 (1863); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 59 (1913).
- fuscipes*, Zetterstedt, Fauna Ins. Lappon. p. 540 [1838] (*Trichina*); Dipt. Scand. Vol. 1, p. 256 [1842] (*Microphora*), Vol. 8, p. 2999 [1849] (*Microphora*); Scholz, Zeitschr. Ent. Breslau, Vol. 5, p. 50 [1851] (*Microphora*); Walker, Ins. Brit. Dipt. Vol. 1, p. 115 (1851); Zetterstedt, Dipt. Scand. Vol. 13, p. 4782 [1859] (*Microphora*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 79 (1862); Loew, Zeitsch. Ent. Breslau, Vol. 17, p. 46 (1864); Strobl, Mitt. Naturv. Ver. Steiermark, Graz, Vol. 29, p. 92 (1893).
- minuta*, Walker (not Fallen), Ins. Brit. Dipt. Vol. 1, p. 115 [1851] (*Microphorus*).
5. *T. nigripes*, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 34, p. 206 (1898); Jahrb. Naturh. Mus. Kärnten, Klagenfurt, Vol. 47, p. 201 (1901).
6. *T. nitida*, nov. sp. (1).

Italy
Finland.

N. Europe.

C. Europe.

Missouri.

acrostichals; pleuræ entirely pollinose. Abdomen with long pale hairs; pygidium rather large, the lateral valves convex, tipped with a row of black denticles, a pair of dorsal filaments present. Legs not shining, simple, the hairs entirely black, front tibiae not noticeably swollen, cilia of the hind femora shorter than the diameter of the femur. Calypteres and halteres piceous brown. Wings broadest in the middle, strongly infumated beyond the basal cells, veins strong, stigma distinct, discal cell slightly shorter than the second basal, petiole of the second and third veins arising over the basal fourth of the second basal cell, sections of the fourth vein proportioned 1 : 0.2 : 1 : 1, of the fifth vein, 1.6 : 0.7 : 1 : 1, last two posterior veins interrupted just before the margin, anal crossvein strongly reflexed, meeting the anal vein at an angle of one hundred twenty-five degrees, the anal vein vanishing much before the margin.

One specimen: Stanford, California, February 4, 1906, received from Dr. Aldrich.

(1) *Trichina nitida*, nov. sp. — Male. Length 2 mm. Black over all, the legs fuscous, paler apically. Occiput fulvous pollinose, its sparse hairs yellowish, third antennal joint four times as long as wide, its basal half barrel-shaped, its apical half cylindrical, the style minute. Mesonotum and most of pleuræ polished, the posterior portion of pleuræ lightly pollinose, bristles black, six scutellars, acrostichals and notal hairs very sparse and short. Abdominal hairs fine, sparse and pale, genitalia erect, globose, pollinose, the side parts ending in back above in a strong jet-black claw, the point directed forward. Legs simple, the posterior femora and hind tibiae bearing rows of fine hairs. Halteres black. Wings normal, subhyaline, stigma weak not filling the end of the marginal cell.

Female. Front shining, wider than the third antennal joint

Two specimens, Atherton, Missouri, May, received from Dr. C. F. Adams.

7. *T. nura*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 349 [1902] (*Euthyneura*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263 [1903] (*Anthalia*). Eastern North America.
8. *T. opaca*, Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 40 (1864); Verrall, Ent. Mag. London, Vol. 48, p. 26 (1912). C. and S. Europe.
9. *T. pullata*, nov. sp. (1). Washington, Montana.

3. GENUS ANTHALIA, ZETTERSTEDT

Anthalia, Zetterstedt, Fauna Ins. Lappon, p. 538 (1838); Dipt. Scand. Vol. 1, p. 249 (1842); Schiner, Fauna Dipt. Austr. Vol. 1, p. 78 (1862); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 119 (1889); Melander, Williston Man. N. Amer. Dipt. 3 ed. p. 225 (1908).

Characters. — Small, robust species, with large wings and large discal cell. Eyes bare, contiguous in the male the whole length of the front except for a small triangular space just above the antennæ, the facets of the upper two-thirds large; face very short and broadly excised usually up to the antennæ, cheeks narrow; basal joint of the antennæ rudimentary, usually not visible, the middle joint very short, the third joint orbicular, compressed, very wide and short, with a terminal short, two-jointed arista which varies in length from as long as the third joint to about one-eighth as long; proboscis lengthened and often horizontally porrect, rarely surpassing the length of the head, rigid, palpi short and slightly swollen; ocellar triangle prominent, located in the male on the vertex, one pair of ocellar and one or two of vertical bristles. Thorax rather or quite prominent, moderately pollinose, more thickly so on the pleuræ, several humeral, posthumeral and notopleural bristles present, only the posterior two dorsocentrals distinct, acrostichals numerous but short, scutellum margined with from four to ten bristles. Abdomen furnished with loose hairs, longer in the male, pygidium small or minute, a short ovipositor formed from the shining last four segments, lateral pits visible. Legs short, simple, front tibiæ usually slightly swollen, hind femora more or less ciliate above and below. Costa stopping at the fourth vein, with a strong basal bristle but with short marginal hairs, auxiliary vein weak and lying close to the first, the latter ending just beyond the middle of the wing, discal cell longer than the basals, emitting three posterior veins, the intercalary sometimes abbreviated and sometimes joined to the fourth vein when the discal cell is open outwardly, anal crossvein abruptly meeting the anal vein which usually attains the margin although quite faint.

Nomenclature and type species : *A. Schoenherri*, Zetterstedt. Zetterstedt had three species when he proposed the genus *Anthalia*, — *Gyllenhalli*, *Schoenherri* and *pallida*. Coquillett (1903) considered the first of these as the type of *Anthalia* and thus threw the genus into the synonymy with *Euthyneura*, since *Gyllenhalli* is a very close relative of *myrtilli*, the monotypical species of *Euthyneura*. This would necessitate bestowing a new generic name on *Schoenherri* and the series of subsequently discovered species related to it. Since Coquillett did not adopt the wisest course we have an instance

(1) *Trichina pullata*, nov. sp. — Male. Length 2.25 mm. Black over all. Occiput lightly pollinose, its hairs fine, abundant, black; third antennal joint broadly lanceolate, subequal to the style. Thorax sparsely pollinose, hairs and bristles blackish, the lateral ones pale, twelve in dorsocentral row, ten pale scutellars, pleuræ pollinose. Abdomen subshining, hairs long and pale, genitalia large, open, extending backward, the lateral valves posteriorly with a pronounced pecten beyond which they continue as a finger-like process. Legs simple, the hind tibiæ slightly clavate, knees narrowly brown, hairs abundant, pale. Halteres black. Wings normal, somewhat smoky, stigma faint, not filling end of marginal cell.

Type, Paradise Park, Mt. Rainier, August, 1917. A male from Gold Creek, Montana, July 29, 1918 and a female from Gardiner, Montana, August 17, 1918, differ in having the mesonotum shining.

where it is just as well not to read the codes too literally, but to utilize Zetterstedt's second species as the genotype and thus preserve a well-known and time-honored name for this series of species. An iron-clad rule that permits any reviewer to fix for perpetuity the types of genera without first-hand knowledge of the species concerned should meet with protest. It were better to modify the rule so as to exclude from consideration species belonging to recognized genera. Zetterstedt's third species, *pallida*, is dichoptic and therefore is not congeneric with either of the others, a fact noted by Zetterstedt. The next following genus, *Allanthalia*, is erected for its reception.

The genera *Anthalia*, *Euthyneura*, *Trichina*, *Microphorus* and *Anthepiscopus* have been much confused due to a general resemblance between them. The first three have the anal cell of similar construction, with the anal crossvein bent sharply back and meeting the anal vein in a distinct but obtuse angle, the characteristic neurulation of the Ocydromiinae. In this subfamily they form a natural group distinct in having three posterior veins, a short, two-jointed antennal style with the first joint thick and the second joint microscopic, and are evidently related to *Cedalea*. Those species with short antennae belong to *Anthalia*, those with lengthened antennae and short proboscis to *Trichina* and those with lengthened antennae and projecting proboscis to *Euthyneura*. As long as it was considered that the genera were defined by single characters there was justification in regarding them synonymous, and as these characters are all quite variable the genera have been merged by various writers. However, as indicated in the key to the genera, the species of each of these groups have a distinctive facies, and undoubtedly the groups as outlined present phyletic lines of descent which may be considered to have generic rank. The commonest American species differ from the typical forms in having a highly arched thorax, a more or less protruding proboscis and a lengthened antennal style, and bear a superficial resemblance to *Anthepiscopus*, with species of which genus they associate at the same flowers.

TABLE OF THE NORTH AMERICAN SPECIES OF ANTHALIA

1. Yellow species with yellow legs and halteres; proboscis very short 2.
Black species, the halteres and legs usually blackish; bristles black,
pale only in *femorata* 4.
2. Bristles of the body yellow; head and base of the antennae yellow,
third antennal joint elongate oval; sections of the fifth vein 1 : 1.9. A. GILVIBIRTA, Coquillett.
Bristles of the body black; head and antennae black; sections of the
fifth vein subequal; third antennal joint rotund (*bulbosa* ♀). 3.
3. Head entirely black, thorax medially darker, veins brownish . . . var. *BULBOSA*, Melander.
Front and cheeks, entire body and veins yellow. var. *FLAVA*, Coquillett.
4. Upper facets of ♂ eyes scarcely larger than the lower; style nearly as
long as the third antennal joint; proboscis projecting as far as the
length of the head, palpi very narrow; stigma distinct; scutellum
with four bristles A. *MANDALOTA*, nov. sp. (1).

(1) *Anthalia mandalota*, nov. sp. — Male. Length 2 mm. Entirely black including the antennae, mouthparts, legs and halteres. Head rather hemispherical, eyes contiguous almost to the antennae, narrowly separated on the face and almost touching below, facets uniformly small; antennae short, the first joint minute, the third joint broadly pyriform, one-half longer than deep, the style slender and two-thirds the length of the third joint; proboscis geniculate at the base, slender and projecting forward a distance somewhat greater than the length of the head, the palpi narrow, almost linear and furnished with four small setae; ocellar and vertical bristles short. Thorax greatly arched, nearly shining, hairs inconspicuous, four notopleurals, one posthumeral, four scutellars; pleurae lightly pollinose, a sternopleural spot shining; pygidium minute, abdominal hairs sparse. Front tibiae slightly swollen, short-ciliate along the extensor edge, extensor cilia of the hind femora as long as the diameter of the femur, of the under side bristle-like. Calypteres dusky.

- Upper facets of ♂ eyes conspicuously larger than the lowermost;
palpi not linear. 5.
5. Halteres, veins and wings whitish; abdomen sericeous, its hairs
white *A. LACTEIPENNIS*, nov. sp. (1).
- Halteres fuscous to black, wings not opalescent, veins yellow to black. 6.
6. Stigma distinct; legs and halteres black; style distinct; proboscis
often projecting; sternopleura more or less shining 7.
- Stigma obsolete; legs and halteres brownish, hind femora rarely
ciliate below; proboscis and style minute; pleuræ almost wholly
opaque 11.
7. Hind femora and tibiæ thickened, the tibiæ rounded at the knee and
shortened, the femora not ciliate beneath; hairs of the abdomen
and legs and some of the thoracic bristles whitish; abdomen
largely shining *A. FEMORATA*, nov. sp. (2).

Wings with a very light infumation, veins blackish, stigma distinct, discal cell one-third longer than the rather narrow second basal, its posterior veins reaching the margin, sections of the fourth vein proportioned, 0.7 : 0.3 : 1 : 1, of the fifth vein, 1 : 0.2 : 1 : 0.8, anal angle prominent, anal crossvein parallel with the hind margin, anal vein faint.

Female. Eyes broadly separated on the front; abdomen tapering, the last four segments short and shining.

Numerous specimens from Mount Constitution, Vashon, Tacoma, Ilwaco, Sultan and Quilcene, Washington, May-July; and Portola, California, April, the last received from Dr. J. M. Aldrich.

(1) *Anthalia lacteipennis*, nov. sp. — Male. Length 1.8 mm. Body black, very lightly dusted, the abdomen more cinereous, antennæ and mouth-parts black, halteres whitish, wings and veins opalescent white, legs piceous. Eyes broadly contiguous on the front, the upper facets large, mouth-opening narrow, extending quite to the antennæ, epistome shining, cheeks narrow; antennæ two-jointed, the outer joint large and broadly pyriform, scarcely longer than broad and subequal in length to the style; proboscis projecting forward more than the length of the head, palpi slender and furnished with five setæ; vertical bristles small. Thorax highly arched, two pairs of strong prescutellars, four scutellars, one humeral, one posthumeral, three notopleurals and one postalar, acrostichals weak; pleuræ entirely pollinose. Abdomen with sparse long white hairs, pygidium minute, lateral pits distinct. Front tibiæ not noticeably swollen, extensor cilia of the hind femora short, flexor cilia setiform, metatarsi yellowish. Wings with parallel sides, costa yellow, other veins white, costal hairs black, no stigma, discal cell one-half longer than the narrow second basal, sections of the fourth vein proportioned 0.4 : 0.2 : 1 : 1.4, of the fifth vein, 1.2 : 0.3 : 1 : 1.3, posterior veins weak but reaching the margin, anal crossvein almost recurved, vanishing, anal vein obsolete.

Female. Eyes broadly separated by the shining front; discal cell longer, twice as long as the second basal, sections of the fourth vein, 0.4 : 0.15 : 1 : 1, of the fifth vein, 1 : 0.15 : 1 : 1; terminal segments of the abdomen short and shining.

Numerous specimens; type from Moscow Mountain, Idaho, frequenting flowers of *Pentstemon* on the summit (4900 feet altitude), July 3, 1911. Paratypes from the same place and from Bovill and Waha, Idaho; Pullman, Almota, Glenwood, Husum, Blewett, Seattle, Tacoma, Vashon, South Bend, Nahcotta and Ilwaco, Washington; Kaslo, British Columbia (U. S. N. M.); Yosemite Valley (Cresson), Humboldt Co. (H. S. Barber) and Santa Cruz Mountains (Doane), California.

(2) *Anthalia femorata*, nov. sp. — Male. Length 2.3 mm. Black, subshining, bristles of lower occiput, sides of thorax, abdomen, coxæ and legs whitish, hind legs robust, the tibiæ shortened, abdomen mainly shining and devoid of pollen. Eyes broadly contiguous on the front, the upper facets large, face widely excavated up to the antennæ, proboscis directed forward, but scarcely protruding from the oral opening, palpi with a few long setæ, ocellar bristles stout. Mesonotum lightly dusted, discal setulæ pale, four pale humerals, five or six pale posthumerals, three black and two pale notopleurals, two black dorsocentrals and six black scutellar bristles; pleuræ pollinose except most of the sterno- and mesopleuræ. Venter and sides of the tergites shining, the upper side of the abdomen lightly pollinose, leaving however a circular shining spot at the base of each hair; pygidium scarcely longer than the preceding segment, broad. Anterior knees narrowly yellow, front tibiæ not swollen, hind femora much thicker than the others, highly shining, not ciliate below, but above with a row of short white cilia which are two-thirds as long as the thickness of the femur, hind tibiæ three-fourths as long as their femora, likewise incrassate, shining except as the tip, strongly curved at the knee. Halteres black, calypteres blackish and fringed with dusky hairs. Wings nearly hyaline, broader at the base, veins blackish, stigma distinct, discal cell blunt, one-half longer than the rather narrow second basal which is subequal in length to the first, posterior veins complete, sections of the fourth vein proportioned 0.6 : 0.3 : 1 : 1, of the fifth vein, 1.3 : 0.3 : 1 : 0.9.

Eight specimens: Kettle Falls, Washington, May 3, 1912, and Moscow Mt., Idaho, June and July. In the structure of the hind legs this species suggests *Edalea*, but there are no spines and the knee is not angulate. The general habitus, with short thick body, is like the species of *Anthalia*.

- Hind legs not thickened, the femora ciliate beneath, the tibiae not shortened; thoracic bristles and hairs of abdomen, coxae and femora black, except in *interrupta*; abdomen pollinose. 8.
8. Scutellum with eight or six bristles; mesonotum only subshining. its bristles strong and abundant 9.
- Scutellum with four or six bristles; mesonotal bristles weak and not conspicuous (*stigmatis*) 10.
9. Pygidium minute; hairs of the abdomen black; intercalary vein complete; style of the antennae about two-thirds as long as the third joint A. SCUTELLARIS, nov. sp. (1).
- Pygidium relatively larger, obliquely ascending; hairs of the abdomen whitish; second posterior cell very narrow at the base, the intercalary vein abruptly shortened; style nearly as long as the third joint A. INTERRUPTA, nov. sp. (2).
10. Discal cell complete, emitting three veins of which the intercalary may be evanescent. var. STIGMALIS, Coquillett.
- Discal cell open outwardly, the fourth vein forked var. PETIOLATA, nov. var. (3).

(1) *Anthalia acutellaris*, nov. sp. — Male. Length 2 mm. Entirely black, rather opaque dusted, bristles well developed, wings hyaline, stigma distinct. Head rather hemispherical, eyes contiguous along the front, face very short, excised by the mouth-opening up to the antennae; proboscis retracted, or if porrect, not extending beyond the head, palpi rather long and broad and with three minute setae; antennae two-jointed, the outer joint broadly orbicular, but slightly longer than the style; ocellar bristles strong. Thorax bristly, the discal setulae prominent and relatively long, typically the following bristles present, but there may be some variation: four humeral, four posthumeral, seven notopleural, two dorsocentral, one postalar, eight scutellar; pleurae almost entirely dark pollinose. Abdomen subopaque, its hairs black, pygidium minute and not exposed. Cilia of the hind femora longer than the diameter of the femur, tarsi entirely black and with black hairs. Halteres black. Wings with parallel sides, veins blackish, discal cell one-third longer than the narrow second basal, sections of the fourth vein proportioned 0.5 : 0.25 : 1 : 1, of the fifth vein. 1.2 : 0.2 : 1 : 1, anal crossvein parallel with the hind margin, anal vein thin.

Female. Eyes broadly separated by the pollinose front, face less excised, facets uniform, thoracic bristles less pronounced, last four segments of the abdomen forming a short ovipositor, legs piceous, the front coxae and femora only fuscous.

Numerous specimens from the flowers of pink currant (*Ribes*), Tacoma and Seattle, Washington, May 12-14, 1913; also from Ilwaco and Mt. Rainier, Washington.

(2) *Anthalia interrupta*, nov. sp. — Male. Length 1.8 mm. Entirely black, subshining, scutellum with six bristles, abdomen with white hairs, pygidium relatively large, upper facets enlarged, style subequal to the orbicular third joint of the antennae, stigma distinct, discal cell pointed, intercalary vein shortened. Face broadly excised up to the antennae, proboscis scarcely projecting from the oral opening, palpi thick; basal joint of the antennae minute, third joint very broadly oval, scarcely longer than deep and subequal in length to the style; ocellar bristles distinct. Thorax highly arched, its bristles rather prominent and black, about four humerals, five small subhumeral in a transverse row, four notopleurals, two dorsocentrals, six scutellars; pleurae dusted but with a large shining sternopleural spot encroaching on the mesopleura. Pygidium obliquely ascending, as long as the two preceding segments together. Hairs of the coxae and cilia of the hind femora pale, the cilia equal in length to the diameter of the femur, hind tibiae straight and nearly as long as their femora. Calypteres dusky but fringed with pale hairs. Wings nearly hyaline, veins blackish stigma distinct, discal cell one-half longer than the narrow second basal, broad but tapering almost to a point at the apex, the second posterior cell much narrower than the third, intercalary vein extending two-thirds the distance to the margin, abruptly interrupted, second basal cell longer than the first, sections of the fourth vein proportioned 0.55 : 0.2 : 1 : 1.3, of the fifth vein, 1.4 : 0.4 : 1 : 1.4, anal angle prominent.

Female. Ovipositor segments very short.

Numerous specimens, Kettle Falls, Washington, May 3, 1912, from flowers of wild cherry.

(3) *Anthalia stigmatis*, var. *petiolata*, var. nov. — *Anthalia stigmatis* is widely distributed along the Pacific Coast. I have over four hundred specimens from Alaska, Idaho, Washington, Oregon and California, the species extending inland as far as Kendrick, Idaho. A series of specimens, ten males and eight females, from the summit of Moscow Mountain and from Craigs Mountain, both in Idaho, uniformly differ from the typical form in having the discal cell apically open, the intercalary vein joining with the fourth vein midway between the anterior crossvein and the tip of the wing. As the variation is constant and is not found in any of the other specimens this form may be

11. Pygidium large, obliquely ascending; intercalary vein interrupted;
 thorax shining; legs blackish A. SCHOENHERRI, Zetterstedt.
 Pygidium minute; intercalary vein complete; thorax coated with
 pollen, at most subshining; legs fuscous. 12.
 12. Style one-sixth as long as the third antennal joint; veins delicate . . A. BULBOSA, Melander ♂.
 Style one-half as long as the third joint; veins coarse and yellowish. A. INORNATA, nov. sp. (1).

Geographical distribution.

1. *A. bulbosa*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 349 [1902] Eastern North America.
 (*Euthyneura*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263
 [1903] (*Euthyneura*); Slosson, Ent. News, Philad. Vol. 14, p. 267
 [1903] (*Euthyneura*).
2. *A. femorata*, nov. sp. Washington, Idaho.
3. *A. flava*, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 268 (1903); Slosson, Eastern North America.
 Ent. News Philad. Vol. 14, p. 266 (1903).
4. *A. gilvihirta*, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 268 [1903] Eastern North America.
 (*Microphorus*).
5. *A. inornata*, nov. sp. Washington.
6. *A. interrupta*, nov. sp. Washington.
7. *A. lacteipennis*, nov. sp. Western North America.
8. *A. mandalota*, nov. sp. Western North America.
9. *A. Schoenherr*, Zetterstedt, Fauna Ins. Lappon, p. 539 (1838); Dipt. Sc. Europe; North America.
 Vol. 1, p. 252 (1842); Frey, Acta Soc. Sc. Fenn. Helsingfors,
 Vol. 31 (9), p. 5 [1908] (*Euthyneura*); Strobl, Mitteil. Naturw. Ver.
 Steiermark, Graz, Vol. 46, p. 74 [1909] (*Euthyneura*); Wahlgren,
 Ent. Tidskr. Vol. 31, p. 80 [1910] (*Euthyneura*); Frey, Acta Soc.
 Fenn. Vol. 37 (3), p. 61 [1913] (*Euthyneura*).
10. *A. scutellaris*, nov. sp. Washington.
11. *A. stigmatis*, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 268 (1903). Western North America.
 var. *petiolata*, nov. var. Idaho.

4. GENUS ALLANTHALIA, NOV. GEN.

Characters. — Small yellow species with the habitus of *Anthalia*. Head spherical, eyes bare, widely separated on both front and face in both sexes, facets small; antennæ inserted below middle of head, basal joint vestigial, third joint large, elongate oval, twice as long as wide, without style; face

given the varietal name *petiolata*. *Stigmatis* and this variety differ from *scutellaris* in having four scutellar bristles, the meso-, ptero- and sternopleuræ mostly shining, the mesonotum less dusted, the hairs and bristles of the thorax reduced, there being but four notopleural, three humeral and one posthumeral bristles, and the wings pure hyaline.

(1) *Anthalia inornata*, nov. sp. — Female. Length 2.25 mm. Piceous black in color, quite opaque, legs and halteres fuscous. Head brownish pollinose, subshining; antennæ black, the third joint large, orbicular, as deep as long, its style one-third as long as the joint; mouthparts retracted, black; hairs and bristles black. Thorax dusted excepting a small spot on the sternopleura, hairs and bristles black, five notopleurals, three posthumeral, eight scutellars, discal hairs short but bristly, four rows of acrostichals; abdomen subopaque except the last three segments which are not lengthened, hairs black. Front tibiae swollen, hairs of the legs rather outstanding, mainly black, those of the tibiae and tarsi in part paler, extensor cilia of the hind femora shorter than the diameter of the femur, flexor cilia long, bristle-like and about thirteen in number. Wings large, lightly cinereous, veins brownish yellow and rather strong, no stigma, discal cell one-half longer than the narrow second basal, sections of the fourth vein proportioned 0.6 : 0.2 : 1 : 1, of the fifth vein, 1 : 0.2 : 1 : 0.8, anal vein faint, posterior veins attaining the margin, second posterior cell broad at the base, basal cells equal, the discal crossvein oblique.

One specimen : Almota, Washington, May 25, 1913.

short, oral cavity wide, proboscis retracted, palpi spatulate, fleshy, bare; cheeks broad behind. Humeral, posthumeral, notopleural, supra-alar, two posterior dorsocentral and four scutellar bristles present and yellow, notal hairs short. Pygidium large and erect, about twice as high as abdomen. lateral valves prominent; ovipositor elongate, formed from the polished 6-8 segments together with the styles. Legs simple, not ciliate. Wings normal, as in *Anthalia*.

Type species: *A. pallida*, Zetterstedt. Zetterstedt questioned the propriety of including his species in *Anthalia*.

Geographical distribution.

The species occurs in North America as well as in Europe, specimens having been studied from Fall's Church, Va. (Banks); Plummer's Island, Md., from blossoms of wild plum (Shannon); Aylmer and Hull, Quebec (Curran), and Atherton, Mo (Adams). The following is the only known species.

1. *A. pallida*, Zetterstedt, Lappon. p. 539 [1838] (*Anthalia*); Dipt. Sc. Vol. 1, North Europe; North p. 253 [1842] (*Anthalia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 80 America. [1910] (*Euthyneura*).

5. GENUS *ÆDALEA*, MEIGEN.

Ædalea, Meigen, Syst. Besch. Vol. 2, p. 355 (1820); Macquart, Dipt. N. France, Vol. 3, p. 141 (1827); Hist. Nat. Dipt. Vol. 1, p. 321 (1834); Meigen, Syst. Besch. Vol. 7, p. 77 [1838] (*Ædalia*); Zetterstedt, Fauna Ins. Lappon. p. 537 (1838); Blanchard, Hist. Nat. Ins. Vol. 3, p. 581 [1840] (*Ædalea*); Westwood, Gen. Syn. p. 133 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 245 (1842); Boitard, Man. Ent. Vol. 3, p. 317 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 111 (1851); Rondani, Dipt. Ital. Prodr. p. 152 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 559 (1857); Schiner, Fauna Dipt. Aust. Vol. 1, p. 80 (1862); Lioy, Atti Instit. Ven. 1864, p. 724 (1864); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 115 (1889); Melander, Trans. Am. Ent. Soc. Vol. 28, p. 256 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 254, 260 (1903); Melander, Williston Man. N. Amer. Dipt. p. 224 (1908); Kertész, Cat. Dipt. Vol. 6, p. 104 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 578 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 193 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 43, 78 (1910).

Xiphidicera, Macquart, Hist. Nat. Dipt. Vol. 1, p. 356 (1834); Blanchard, Hist. Nat. Ins. Vol. 3, p. 583 [1840] (*Xiphidiocera*); Boitard, Man. Ent. Vol. 3, p. 324 (1843); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 560 [1857] (*Xyphidicera*); Lioy, Atti Ist. Veneto Sc. Venezia, 1864, p. 722 (1864); Meunier, Bull. Soc. Ent. France, 1894, p. IX (1894); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 259 (1903).

Characters. — Moderately stout, rather small species with robust hind femora and greatly elongated antennæ. Head globose, eyes bare, of the female well separated, of the male contiguous on the front, with the antennæ inserted below the middle of the head, upper facets scarcely larger than the lowermost; basal joints of the antennæ small but distinct, the third joint greatly lengthened, more or less cylindrical and from four to eight times as long as broad, tipped with a short two-jointed style, the apical joint of which is minute and bristle-like, the style variable in length, sometimes almost wanting; proboscis short or protruding obliquely forward nearly as far as the head-height, palpi minute; ocellar triangle not elevated, ocellar and vertical bristles poorly developed. Thorax quadrate, finely pubescent, only the prescutellar, dorsocentral, two or three notopleural, one postalar, and about six scutellar bristles present. Abdomen conical, the female with chitinated ensiform ovipositor, the male with a very small

symmetrical pygidium bearing an erect dorsal basal part. Anterior legs normal, bristleless, hind femora elongate, rather clavate, beneath toward the apex with four rows of thornlike spines, those of the lateral rows longer, hind tibiæ geniculate, compressed to an edge opposite the femoral spines, tarsi not swollen. Wings broad, anal angle broadly rectangular, auxiliary vein rather weak and close to the long first vein, costa interrupted at the fourth vein, its basal bristle very weak, basal cells as long as the large discal cell, third vein simple, posterior veins shortened by the enlargement of the discal cell, anal crossvein truncating the anal cell, the anal vein weak but usually attaining the margin.

Type species : *Æ. hybotina*, Fallen, by Westwood's designation. Lundbeck records *flavipes* as having been bred from decaying wood. The species of *Ædalea* have yellow legs, the hind pair more or less darkened. The body is usually shining black with yellow pubescence and bristles. They are sluggish in flight and occur in shady woodlands, but are not commonly met with.

KEY TO THE NEARCTIC SPECIES OF *ÆDALEA*

1. Third antennal joint relatively broad and tapering, four times as long as broad and eight times as long as the style; thorax pollinose; intercalary vein usually short *Æ. PRUINOSA*, Coquillett.
 Third antennal joint elongate cylindrical, much more than four times as long as broad and the style much shorter; thorax shining; intercalary vein complete 2.
2. Antennal style almost invisible; upper facets of ♂ obviously larger; halteres fuscous, wings with strong stigma *Æ. ASTYLATA*, nov. sp. (1).
 Antennal style visible, about one-fifteenth as long as the third joint; halteres yellowish 3.
3. Body black; discal cell nearly three times as long as wide, its sides parallel; stigma distinct; upper facets of ♂ obviously larger *Æ. OHIOENSIS*, Melander.
 Pleuræ at least testaceous; discal cell somewhat widened apically; stigma suffused; upper facets ♂ scarcely larger (*lanceolata*, nov. sp.) 4.
4. Mesonotum, abdomen and hind tibiæ blackish. *Æ. LANCEOLATA*, nov. sp. (2).

(1) *Ædalea astylata*, nov. sp. — Male. Length 3 mm. Body polished black, legs including the coxæ pale yellow, the hind tibiæ brownish; antennal style microscopic; halteres fuscous. Proboscis short, black, scarcely protruding beyond the oral opening; third joint of the antennæ cylindrical, eight times as long as wide and about twenty times as long as the almost invisible style; upper facets conspicuously larger than the lower. Thoracic hairs rather sparse, scutellum bearing six brown bristles, prealar bristle brown; pleuræ highly shining. Pygidium rather long. Hind femora with the usual long pale hairs above and the black setæ beneath, hind tibiæ blackened beyond the geniculation, hind tarsi piceous, the metatarsi not paler, apical joints of the anterior tarsi brownish. Wings with light infuscation, stigma very distinct, veins narrow but dark brown, sections of the fourth vein proportioned 0.7 : 0.2 : 1 : 1, of the fifth vein, 1 : 0.6, intercalary vein complete.

One specimen; Black Rock Mountain, Rabun County, Georgia, May, collected by J. Chester Bradley.

(2) *Ædalea lanceolata*, nov. sp. — Length 3 mm. Head, mesonotum and abdomen black, pleuræ and often the humeri yellowish. Antennæ black, the third joint slightly tapering, eight times as long as broad and twelve times as long as the thickened style; proboscis black, projecting nearly as far as the head-height. Thorax shining, mesonotal yellow hairs rather conspicuous. Legs yellow, the hind tibiæ beyond the knee, the hind tarsi except the base and the anterior tarsi toward the tip brownish, subgenual carina of the hind tibiæ black, the spinous setæ and setulæ of the hind femora strong. Halteres pale yellow to brownish. Wings very lightly infumated, the elongate stigma darker, veins dark brown, discal cell widening distally so as to be less than two and a half times as long as wide, the last two sections of the fourth vein proportioned 1 : 0.8, of the fifth vein, 2 : 1, intercalary vein complete.

Numerous specimens; type from Friday Harbor, Washington. June 29, 1909; paratypes from Olga, Tacoma, Everett, Index, Tulalip, Lake Crescent, Pluvius, Ilwaco, Mt. Rainier, La Center, Lake Chelan and Glenwood, Washington; Collins, Moscow Mt. and Priest Lake, Idaho; Perma and Glacier Park, Montana, and Mt. Hood, Viento and Eagle Creek, Oregon.

Thorax entirely yellow, abdomen varying from yellow to brown;

hind tibiae scarcely darkened var. TESTACEA, nov. var. (1).

Geographical distribution.

1. *Æ. apicalis*, Loew, Neue Beitr. Dipt. Pt. 6, p. 47 (1859); Schiner, Fauna C. Europe.
Dipt. Aust. Vol. 1, p. 81 (1862); Verrall, Ent. Mag. London,
Vol. 48, p. 25 (1912).
2. *Æ. astylata*, nov. sp. Georgia.
- *Æ. braccata*, Rondani, Dipt. Ital. Vol. 1, p. 152 (1857), no description.
3. *Æ. brevicornis*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 26 (1899). Spain.
4. *Æ. flavipes*, Zetterstedt, Dipt. Scand. Vol. 1, p. 247 (1842), Vol. 8, p. 2998 N. and C. Europe.
(1849); Walker, Ins. Brit. Dipt. Vol. 1, p. 113, pl. 4, f. 4 (1851);
Loew, Neue Beitr. Dipt. Vol. 6, p. 48 (1859); Strobl, Mitteil.
Naturw. Ver. Steiermark, Graz, Vol. 29, p. 93 (1892); Lundbeck,
Dipt. Dan. Vol. 3, p. 197, f. 75, 76, 78 (1910); Wahlgren, Ent.
Tidskr. Vol. 31, p. 78 (1910).
minuta, Fallen (not Fabricius), Empid. Suec. p. 32 [1816] (*Empis*); Meigen,
Syst. Besch. Vol. 2, p. 356 (1820); Zetterstedt, Fauna Ins. Lappon.
p. 538 (1838); Dipt. Sc. Vol. 1, p. 247 (1842); Walker, List Dipt. Brit.
Mus. Vol. 3, p. 488 (1849); Ins. Brit. Dipt. Vol. 1, p. 113 (1851);
Schiner, Fauna Dipt. Austr. Vol. 1, p. 81 (1862).
rufipes, Macquart, Hist. Nat. Dipt. Vol. 1, p. 357, pl. 8, f. 11 [1834] (*Xiphidicera*); Meigen, Syst. Besch. Vol. 7, p. 101 [1836] (*Xiphidicera*); Blanchard,
Hist. Nat. Ins. Vol. 3, p. 583 [1840] (*Xiphidicera*); Boitard, Man.
Ent. Vol. 3, p. 325 [1843] (*Xiphidicera*).
? tibialis, Macquart, Dipt. N. France, Vol. 3, p. 142, pl. 4, f. 2 (1827); Hist.
Nat. Dipt. Vol. 1, p. 321 (1834); Meigen, Syst. Besch. Vol. 7, p. 77
[1838] (*Ædulia*); Blanchard, Hist. Nat. Ins. Vol. 3, p. 581 [1840] (*Ædulia*);
Boitard, Man. Ent. Vol. 3, p. 317 (1843); Loew, Neue Beitr. Dipt. Pt. 6,
p. 47 (1859).
5. *Æ. Holmgreni*, Zetterstedt, Dipt. Scand. Vol. 11, p. 4267 (1852); Loew, N. and C. Europe.
Neue Beitr. Dipt. Pt. 6, p. 49 (1859); Strobl, Mitteil. Naturw.
Verein. Steiermark, Graz, Vol. 29, p. 93 (1892); Verrall, Ent. Mag.
(2), Vol. 10, p. 141 (1894); Lundbeck, Dipt. Dan. Vol. 3, p. 199,
f. 200 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 79 (1910); Frey,
Acta Soc. Sc. Fenn. Helsingfors, Vol. 37, p. 59 (1913).
6. *Æ. hybotina*, Fallen, Empid. Suec. p. 31 [1816] (*Empis*); Meigen, Syst. N. and C. Europe.
Besch. Vol. 2, p. 356 (1820); Macquart, Dipt. N. France, Vol. 3,
p. 142, pl. 4, f. 3 (1827); Hist. Nat. Dipt. Vol. 1, p. 321, pl. 7,
f. 16 (1834); Zetterstedt, Fauna Ins. Lappon. p. 538 (1838); Dipt.
Scand. Vol. 1, p. 245 (1842); Scholz, Zeitschr. Ent. Breslau.
Vol. 5 (19), p. 49 (1851); Loew, Neue Beitr. Dipt. Pt. 6, p. 46
(1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 80 (1862); Neuhaus,
Dipt. March. p. 69 (1886); Lundbeck, Dipt. Dan. Vol. 3, p. 198,
f. 77 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 78 (1910); Frey,
Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 59 (1913).
7. *Æ. inermis*, Becker, Deutsche Ent. Zeitschr. 1910, p. 645 (1910). Corsica.
8. *Æ. infuscata*, Loew, Neue Beitr. Dipt. Pt. 6, p. 48 (1859); Schiner, Fauna C. Europe.
Dipt. Aust. Vol. 1, p. 82 (1862).
9. *Æ. lanceolata*, nov. sp. Western North America.
var. *testaceus*, nov. var. Washington.

(1) *Ædulia lanceolata*, var. *testacea*, nov. var. — Thorax entirely yellowish, the abdomen brown rather than black, the dark color of the legs less evident.

Four males and eleven females, from Woodland, Seattle, Everett, Mt. Rainier, Pluvius, and Lilliwaup, Washington.

10. *Æ. ohioensis*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 256, 347, f. 74, 76 (1902). E. United States.
stigmatella, Coquillett, det. in New Jersey List, p. 654 (1899).
11. *Æ. pallipes*, Zetterstedt, Fauna Ins. Lappon. p. 538 (1838); Dipt. Scand. Vol. 1, p. 248 (1842). Vol. 8, p. 2998 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 49 (1851); Zetterstedt, Dipt. Scand. Vol. 13, p. 4980 (1859); Schiner, Fauna Dipt. Aust. Vol. 1, p. 81 (1862); Wahlgren, Ent. Tidskr. Vol. 31, p. 79 (1910). N. and C. Europe.
12. *Æ. ? pennata*, Gimmerthal, Bull. Soc. Nat. Moscou, Vol. 15, p. 665 (1842). Russia. [States.
13. *Æ. pruinosa*, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 267 (1903). North-Eastern United
14. *Æ. * robusta*, Meunier, Ann. Sci. Nat. (Zool.) Vol. 7, p. 91, 110, pl. 7, f. 10, 12 (1908). Baltic Amber, Lower Oligocene.
15. *Æ. stigmatella*, Zetterstedt, Dipt. Scand. Vol. 1, p. 246 (1842), Vol. 8, p. 2998 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 49 (1851); Walker, Ins. Brit. Dipt. Vol. 1, p. 112 (1851); Loew, Neue Beitr. Dipt. Pt. 6, p. 49 (1859); Schiner, Fauna Dipt. Aust. Vol. 1, p. 81 (1862); Siebke, Nyt. Mag. Naturvid. Vol. 14, p. 387 (1866); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 94 (1892); Lundbeck, Dipt. Dan. Vol. 3, p. 198, f. 79 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 78, f. 10 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 59 (1913). Europe.
fulvipes, Zetterstedt, olim in litt. Dipt. Scand. Vol. 1, p. 246 (1842).
stigmatica, Boheman, Svenska Vet. Akad. Handl. p. 190 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 81 (1862); Verrall, List Brit. Dipt. p. 15 (1888).
16. *Æ. tristis*, Scholz, Zeitsch. Ent. Breslau, Vol. 5 (19), p. 49 (1851); Loew, Neue Beitr. Dipt. Pt. 6, p. 48 (1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 80 (1862); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 93 (1892); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 145 (1899). — Pl. 1, Fig. 9. C. and S. Europe.

6. GENUS LEPTOPEZA, MACQUART

Leptopeza, Macquart, Dipt. N. France, Vol. 3, p. 143 [1827] (*Lemtopeza*); Hist. Nat. Dipt. Vol. 1, p. 320 (1834); Zetterstedt, Dipt. Scand. Vol. 1, p. 240 (1842); Boitard, Man. Ent. Vol. 3, p. 316 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 117 (1851); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 560 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 82 (1862); Lioy, Atti Inst. Ven. Sc. Venezia, 1864, p. 724 (1864); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 118 [1889] (*Lemtopeza*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390 (1895); Williston, Man. N. Amer. Dipt. p. 74. (1896); Melander, Trans. Amer. Ent. Vol. 28, p. 257 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 252, 259 (1903); Bezzi, Ann. Mus. Hungar, Vol. 2, p. 321 (1904); Melander, Williston Man. N. Amer. Dipt. 3 ed. p. 225 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301 (1909); Kertész, Cat. Dipt. Vol. 6, p. 107 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 558 [1910] (*Lemtopeza*); Lundbeck, Dipt. Dan. Vol. 3, p. 204 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 43, 79 (1910); Bezzi, Ann. Mus. Hungar, Vol. 10, p. 453 (1912); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 362 (1920).

Characters. — Slender elongate black or yellow species, variable in color, but fixed in structure. Head globose, eyes large, contiguous above and below the antennæ in both male and female, the lower part of the face visible as a linear separation of the eyes, facets uniform or the uppermost large; antennæ inserted at the middle of the head, extending straight forward, two-jointed, that is, the basal joints are

entirely connate, the last joint elongate conical, with a very slender elongate bare single-jointed terminal arista; mouthparts very short, haustellate, the palpi scarcely projecting and hairy; ocellar triangle small, ocellar bristles reaching halfway to the antennæ, two pairs of vertical bristles of similar length. Thorax less than half as long as the abdomen and broader than the head, with very fine seriate pubescence, lateral bristles long but hair-like, an ascending row of three notopleurals, one supraalar, one postalar, one prescutellar and several scutellars present. Abdomen cylindrical, pygidium small, distorted, asymmetrical, the valves with slender ribbon-like processes; terminal segments of the female usually prolonged to an ensiform chitinized ovipositor. Legs slender, hairy, coxæ short, the front coxæ slightly the longest, femora without bristles, middle tibiæ with several sets of long bristles. Wings elongate, anal angle prominent, rounded rectangular, basal bristle of the costa present, costa stopping beyond the third vein, pubescence of the wing-membrane coarse, auxiliary vein rudimentary, lying close to the first vein, which terminates at the outer fourth of the wing, third vein simple, its pedicel long, discal cell emitting two unforked veins which are the fifth and sixth longitudinals, only a spur of the fourth vein sometimes distinguishable beyond the discal cell, basal cells large, the first basal narrower than the second, anal cell shorter than the second basal, obliquely truncate by its reflexed straight crossvein.

Type species: *L. flavipes*, Meigen (Pl. 8, Fig. 19), the only species given in the original description, and which is synonymous with *ruficollis* Meigen. The habits of the species of this genus are unknown, except that the adults occur in open and rather shady spots in woods near streams or lakes. Most of the species, like *ruficollis*, *borealis*, *nigripes*, *disparilis* and *compta* are not clearly limited, and often specimens can be found on the borderland between species, making identification difficult at times. This is due to the variable color within the species and the stereotyped habitus of the genus. *Sphenoptera*, however, departs from the others and several times it has been suggested that this species be removed from *Leptopeza*. It is peculiar in several characters, and in many ways is more closely related to the South American *Hoplopeza* than to *Leptopeza*. This species has here been removed under the generic name *Leptometopiella*.

TABLE FOR THE SEPARATION OF THE NEARCTIC SPECIES OF LEPTOPEZA

1. Thorax devoid of pubescence, lightly pollinose, scutellum with only two bristles; antennæ elongate, arista white, outer joint six times as long as broad and three times as long as the inner joint; no ovipositor; wings strongly infumated; mouthparts black. *L. ANTENNALIS*, nov. sp. (1).
 Thorax shining, with short but evident pubescence, scutellum with more than two bristles; antennæ much shorter, the arista black; a long ensiform ovipositor developed; wings clear. 2.
2. Mouthparts black; antennæ black; hind femora and tibiæ largely black, especially in the male 3.

(1) *Leptopeza antennalis*, nov. sp. — Length 3.5 mm. Black, thorax almost devoid of pubescence, lightly pollinose, scutellum with only two bristles; antennæ elongate, the outer joint six times as long as wide and three times as long as the basal joint, arista yellow; no ovipositor. Upper facets of male large, occiput with brownish pollen, mouthparts black, arista about one-third longer than the black antennæ, the outer antennal joint narrow and tapering. Hairs of the mesonotum and scutellum very sparse and microscopic. Abdomen shining, hairs of the first ventral long dense and pale, pygidium small but open, the middle valves strongly forcipate. Coxæ yellow, base of legs yellow, becoming progressively darker distally to the piceous tarsi, the hind legs darkest. Halteres yellow (♀) or with black knob (♂). Wings strongly infumated, no stigma.

Six specimens; Washington, D. C., August 17, 1913, taken by the author near Chain Bridge on the Potomac River. It is strange that this very distinct species was not discovered earlier by the many entomologists who have collected in this locality.

- Mouthparts yellowish, particularly the palpi 4.
3. Dorsal valve of pygidium concave behind; arista about twice the length
of last antennal joint; 3 mm. L. BOREALIS, Zetterstedt.
Dorsal valve with straight hind edge; arista more than twice as long as
third joint; 4 mm. L. DISPARILIS, Melander.
4. Antennæ entirely black L. RUFICOLLIS, Meigen.
Antennæ yellow, the basal joint sometimes black; body varying from
yellow to black. L. COMPTA, Coquillett.

Geographical distribution.

1. *L. antennalis*, nov. sp. District of Columbia.
2. *L. bimaculata*, Bezzi, Ann. Mus. Hungar, Vol. 2, p. 337 (1904); White, New South Wales,
Proc. Roy. Soc. Tasmania, 1916, p. 242 (1917). Tasmania.
3. *L. biplagiata*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 473 (1912). Formosa
4. *L. borealis*, Zetterstedt, Dipt. Scand. Vol. 1, p. 243 (1842), Vol. 8, N. Europe, E. United
p. 2997 (1849); Wahlgren. Ent. Tidskr. Vol. 31, p. 80 (1910); States.
Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 60 (1913).
flavipes, Zetterstedt (not Meigen), Fauna Ins. Lappon. p. 537, part [1838]
(*Ocydromia*).
5. *L. *clavipes*, Loew, Bernstein Fauna, Vol. 1, p. 41 (1850); Giebel, Ins. Lower Oligocene,
Vorwelt, p. 208 (1856). Baltic Amber.
6. *L. compta*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 435 (1895); United States.
Melander, Trans. Am. Ent. Soc. Vol. 28, p. 258, f. 70 (1902).
7. *L. *concinna*, Meunier, Ann. Sci. Nat. (Zool.) Vol. 7, p. 91, 110, pl. 7, Baltic Amber.
f. 13, 14 (1908).
8. *L. disparilis*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 258, f. 69 (1902). United States.
9. *L. flavimana*, Zetterstedt, Dipt. Scand. Vol. 1, p. 244 (1842), Vol. 8, N. Europe.
p. 2997 (1849).
10. *L. javana*, Meijere, Tijdschr. v. Ent. Vol. 56, suppl. 71 (1913). Java.
11. *L. levicosta*, White, Proc. Roy. Soc. Tasmania, 1916, p. 244, f. 48 (1917). Tasmania.
12. *L. nigripes*, Zetterstedt, Dipt. Scand. Vol. 1, p. 44 (1842). N. Europe.
13. *L. pulcherrima*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 336 (1904); White, New South Wales,
Proc. Roy. Soc. Tasmania, 1916, p. 243 (1917). Tasmania.
14. *L. rivos*a, Bigot, Miss. Scient. Cap. Horn. (Zool.) Vol. 6, p. 21 [1888] Cape Horn.
(*Lemtopeza*); Bezzi, Ann. Mus. Hungar, Vol. 3, p. 458 (1905).
15. *L. rubrithorax*, White, Proc. Roy. Soc. Tasmania, 1916, p. 243 (1917). Tasmania.
16. *L. ruficollis*, Meigen, Syst. Besch. Vol. 2, p. 353, pl. 21, f. 24 [1820] Europe, North America.
(*Ocydromia*), Vol. 6, p. 334 [1830] (*Ocydromia*); Loew, Bemerk.
Posen Gegend. Art. Zweifl. Gatt. p. 19 (1840); Isis, Vol. 7, p. 554
[1840] (*Ocydromia*); Stæger, Naturhist. Tidskr. Vol. 4, p. 100 (1842);
Zetterstedt, Dipt. Scand. Vol. 1, p. 241 (1842); Vol. 8, p. 2996
(1851); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (17), p. 48 (1851);
Walker, Ins. Brit. Dipt. Vol. 1, p. 117, pl. 4, f. 7 (1851); Strobl,
Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 94 (1892);
Wahlgren, Ent. Tidskr. Vol. 31, p. 79 (1910). — **Pl. 8, Fig. 79.**
flavipes, Meigen, Syst. Besch. Vol. 2, p. 353 [1820] (*Ocydromia*); Macquart,
Mém. Soc. Sc. Lille, p. 147 [1823] (*Ocydromia*); Ins. Dipt. France, Vol. 3,
p. 144, pl. 4, f. 4 [1827] (*Lemtopeza*); Hist. Nat. Dipt. Vol. 1, p. 321, pl. 7,
f. 15 (1834); Zetterstedt, Fauna Ins. Lappon. p. 537, part [1838] (*Ocy-*
dromia); Loew, Bemerk. Posen Gegend Art. Zweifl. Gatt. p. 19 (1840);
Isis, Vol. 7, p. 554 [1840] (*Ocydromia*); Zetterstedt, Dipt. Scand. Vol. 1,
p. 242 (1842); Boitard, Man. Ent. Vol. 3, p. 316 (1843); Walker, List
Dipt. Brit. Mus. Vol. 3, p. 488 [1849] (*Ocydromia*); Zetterstedt, Dipt.
Scand. Vol. 8, p. 2997 (1849); Dahlbom, Svenska, Vet. Akad. Handl.

- p. 160 (1850); Scholz, Ent. Breslau, Vol. 5 (17), p. 48 (1851); Walker, Ins. Brit. Dipt. Vol. 1, p. 117 (1851); Zetterstedt, Dipt. Scand. Vol. 11, p. 4267 (1852), Vol. 12, p. 4597 (1855), Vol. 13, p. 4979 (1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 82 (1862); Raddatz, Arch. Freund. Naturg. Mecklenb. Rostock, Vol. 27, p. 42 (1873); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 94 (1892); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 435 (1895); Strobl, Wien. Ent. Zeit. Vol. 18, p. 27 (1899); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 258, f. 68 (1902); Lundbeck, Dipt. Dan. Vol. 3, p. 206, f. 83, 84 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 79 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 60 (1913).
- tibialis*, Zetterstedt, Dipt. Scand. Vol. 1, p. 242 (1842), Vol. 8, p. 2997 (1849); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 143 (1861); Siebke, Nyt. Mag. Naturvid. Vol. 14, p. 380 (1866).
- var. *unicolor*, Strobl, Jahrb. Naturhist. Landesmus. Kärnten, Klagenfurt, Vol. 47, p. 202 (1901).
17. *L. rugosiventris*, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 73 (1909). C. Europe.
18. *L. serraticosta*, White, Proc. Roy. Soc. Tasmania, 1916, p. 245 (1917). Tasmania.
19. *L. setigera*, Bezzi, Bul. Soc. Ent. Ital. Vol. 32, p. 82 (1900). S. Europe.
flavipes, Bezzi (not Meigen), Bul. Soc. Ent. Ital. Vol. 30, p. 145 (1899).
20. *L. *spinigera*, Loew, Bernstein Fauna, p. 41 (1850); Meunier, Miscell. Ent. Vol. 7, p. 178 (1899). Lower Oligocene, Baltic Amber.
21. *L. tachydromiaformis*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 338 (1904). New South Wales.
22. *L. vitripennis*, Brunetti, Rec. Indian. Mus. Vol. 9, p. 31 (1913); Fauna Brit. Ind. Dipt. Vol. 1, p. 363, pl. 4, f. 12, 13 (1920). India.

7. GENUS OCYDROMIA, MEIGEN

Ocydromia, Meigen, Syst. Besch. Vol. 2, p. 351 (1820); Macquart, Mém. Soc. Sc. Lille, 1823, p. 145 (1823); Dipt. N. France, Vol. 3, p. 144 (1827); Hist. Nat. Dipt. Vol. 1, p. 319 (1834); Zetterstedt, Fauna Ins. Lappon, p. 535 (1838); Blanchard, Hist. Nat. Ins. Vol. 3, p. 581 [1840] (*Ocydromyia*); Westwood, Gen. Syn. p. 133 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 236 (1842); Boitard, Man. Ent. Vol. 3, p. 316 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 118 (1851); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 560 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 81 (1862); Lioy, Atti Instit. Venet. 1864, p. 723 (1864); Beling, Arch. Naturg. Berlin, Vol. 48, p. 239 (1882); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 117 [1889] (*Ocydromyia*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390 (1895); Williston, Man. N. Amer. Dipt. 3 ed., p. 74 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 259 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 254, 259 (1903); Melander, Williston, Man. N. Amer. Dipt. 3 ed. p. 225 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301 (1909); Kertész, Cat. Dipt. Vol. 6, p. 105 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 577 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 200 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 43, 79 (1910).

Characters. — Slender, shining, blackish or yellow species about three or four millimeters in length. Head globular, eyes contiguous above the antennæ and subcontiguous on the face, facets uniformly small; antennæ inserted at the middle of the head, the basal joints small and fused, the third joint oval and with a subdorsal long slender hair-like arista; proboscis very short, fleshy, scarcely protruding from the oral opening; ocellar triangle not prominent, ocellar bristles small. Thorax short but rather highly arched, devoid of pollen and stiff bristles, its hairs very sparse; scutellum villose and margined with several bristles; pleuræ shining and bare. Abdomen twice as long as the thorax, slender, cylindrical, pygidium minute, asymmetrical, abdomen of the female with blunt termination, no

ovipositor. Legs simple, slender, hairy but without bristles. Calypteres with a prominent fringe. Wings rather large, the anal angle broadly rectangular, costa greatly attenuated beyond the third vein, auxiliary vein very close to the first vein into which it ends, third vein simple, its pedicel arising before the middle of the basal cells, basal cells long, coextensive, nearly as long as the discal cell and longer than the anal cell, the discal cell emitting two veins which are the intercalary and the fifth longitudinal, at most a stump of the fourth vein projecting from the discal cell, anal crossvein reflexed and straight, forming an angle of about one hundred degrees with the anal vein, the anal vein weak but extending to the margin.

Type species : *C. glabricula*, Fallen (**Pl. I, Fig. 10**), Westwood's designation, a species widely distributed over the Northern Hemisphere. The larva and pupa of this species have been described by Beling in the reference above given. The adults occur in shady woodlands where they fly feebly about the vegetation.

Geographical distribution.

- *O. ? cothurnata*, Bigot, in litt.; Brunetti, Rec. Indian. Mus. Vol. 9, p. 31 (1913).
- 1. *O. elegans*, Bigot, Miss. Scient. Cap. Horn, Vol. 6, p. 21, pl. 3, f. 5 [1888] Cape Horn.
(*Ocydromyia*); Bezzi, Ann. Mus. Hungar, Vol. 3, p. 458, note 4 [1905] (? *Euthyneura*).
- 2. *O. fuscipennis*, Macquart, Mém. Soc. Sc. Lille, p. 147 (1823). France.
- 3. *O. glabricula*, Fallen, Empid. Suec. p. 33 [1816] (*Empis*); Meigen, Syst. Europe, North America.
Besch. Vol. 2, p. 352, pl. 21, f. 23 (1820); Macquart, Mém. Soc. Sc. Lille, p. 146 (1823); Dipt. N. France, Vol. 3, p. 145, pl. 4, f. 5 (1827); Hist. Nat. Dipt. Vol. 1, p. 320, pl. 7, f. 14 (1834); Zetterstedt, Fauna Ins. Lappon. p. 536 (1838); Blanchard, Hist. Nat. Ins. Vol. 3, p. 581 (1840); Stæger, Naturh. Tidskr. Vol. 4, p. 101 (1842); Zetterstedt, Dipt. Scand. Vol. 1, p. 236 (1842); Boitard, Ent. Man. Vol. 3, p. 316 (1843); Walker, List Dipt. Brit. Mus. Vol. 3, p. 487 (1849); Zetterstedt, Dipt. Scand. Vol. 8, p. 2995 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5, p. 48 (1851); Walker, Ins. Brit. Vol. 1, p. 118, pl. 4, f. 8 (1851); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 143 (1861); Schiner, Fauna Dipt. Austr. Vol. 1, p. 82 (1862); Beling, Archiv. Naturg. Berlin, Vol. 48 (1), p. 213 (1882); Neuhaus, Dipt. March. p. 69 (1886); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 133 (1887); Verrall, The Entom. Vol. 23, p. 153 (1890); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 94 (1892); Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 421 (1900); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 259, f. 66, 67 (1902); Czizek, Zeitschr. Mähr. Landesmus. Brünn, Vol. 7, p. 166 (1907); Lundbeck, Dipt. Dan. Vol. 3, p. 202, f. 81, 82 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 79, f. 11 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 59 (1913). — **Pl. I, Fig. 10.**
- ? *coxalis*, Roser, Correspondenzbl. Landw. Ver. Württenb. Stuttgart, Vol. 1, p. 53 (1840).
- dispar*, Curtis, Brit. Ent. Vol. 8, p. 517 [1834] (*Rhamphomyia*).
- dorsalis*, Meigen, Syst. Besch. Vol. 6, p. 334 (1830).
- melanopleura*, Loew, Bemerk. Posen, Gegend. Art. Zweifl. Gatt. p. 19 (1840); Isis, Vol. 7, p. 545 (1840); Czizek, Zeitsch. Mähr. Landesmus. Brünn, Vol. 7, p. 166 (1907).
- nigripennis*, Meigen (not Fabricius), Syst. Besch. Vol. 6, p. 334 (1830); Macquart, Hist. Nat. Dipt. Vol. 1, p. 320 (1834); Boitard, Man. Ent. Vol. 3, p. 316 (1843); Walker, List Dipt. Brit. Mus. Vol. 3, p. 488 (1849);

- Scholz, Zeitschr. Ent. Breslau, Vol. 5 (17), p. 48 (1851); Neuhaus, Dipt. March. p. 69 (1886).
- peregrinata*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 488 (1849).
- ruficollis*, Macquart (not Meigen), Mém. Soc. Sc. Lille, p. 147 (1823); Dipt. France, Vol. 3, p. 146 (1827); Hist. Nat. Dipt. Vol. 1, p. 320 (1834); Boitard, Man. Ent. Vol. 3, p. 316 (1843).
- rufipes*, Meigen, Syst. Besch. Vol. 2, p. 353 (1820); Zetterstedt, Fauna Ins. Lappon. p. 536 (1838); Stæger, Naturh. Tidskr. Vol. 4, p. 100 (1842); Zetterstedt, Dipt. Scand. Vol. 1, p. 239 (1842); Walker, List Dipt. Brit. Mus. Vol. 3, p. 487 (1849); Zetterstedt, Dipt. Sc. Vol. 8, p. 2996 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (17), p. 48 (1851); Walker, Ins. Brit. Dipt. Vol. 1, p. 119 (1851); Pipping, Not. Sällsk. Fenn. Förh. Vol. 4, p. 114 (1858); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 143 (1861); Siebke, Nyt. Mag. Naturvid. Vol. 14, p. 399 (1866); Neuhaus, Dipt. March. p. 69 (1886).
- scutellata*, Meigen, Syst. Besch. Vol. 2, p. 354 (1820); Macquart, Hist. Nat. Dipt. Vol. 1, p. 320 (1834); Zetterstedt, Fauna Ins. Lappon. p. 537 (1838); Loew, Bemerk. Posen. Gegend Art. Zweifl. Gatt. p. 19 (1840); Isis, Vol. 7, p. 554 (1840); Zetterstedt, Dipt. Sc. Vol. 1, p. 237 (1842); Boitard, Man. Ent. Vol. 3, p. 316 (1843); Walker, List Dipt. Brit. Mus. Vol. 3, p. 487 (1849); Zetterstedt, Dipt. Sc. Vol. 8, p. 2995 (1849); Walker, Ins. Brit. Dipt. Vol. 1, p. 119 (1851); Zetterstedt, Dipt. Scand. Vol. 13, p. 4978 (1859); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 143 (1861); Czizek, Zeitschr. Mähr. Landesmus. Brünn, Vol. 7, p. 166 (1907).
4. *O. hirsutipes*, Becker, Ann. Soc. Ent. France, Vol. 83, p. 123 (1914). E. Africa.
5. *O. Philippii*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 128 (1889); Chile. Bezzi, Ann. Mus. Hungar, Vol. 3, p. 458 (1905).

8. GENUS LEPTOMETOPIELLA, NOV. GEN.

Characters. — Eyes separated on the front in both sexes, the lowermost facets largest; antennæ three-jointed, inserted above the middle of the head; discal cell long, anal crossvein interrupted beyond its middle, anal vein reduced to a fold, anal angle of the wing scarcely developed, the wings accordingly cuneiform; notopleural bristles reduced; lateral valves of the pygidium greatly convex. Other characters as described for *Leptopeza*.

Type species: *L. sphenoptera*, Loew. The shortened anal crossvein is found also in *Hoplopeza* and is more or less indicated in true *Leptopezas*, where the anal vein is weakened and the crossvein becomes attenuated.

Geographical distribution.

1. *L. sphenoptera*, Loew, Besch. Eur. Dipt. Vol. 3, p. 215 (1873) ♀; Strobl, C. and S. Europe, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 94 (1892) ♂, N. Africa. Vol. 34, p. 207 (1898); Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 119 (1907); Lundbeck, Dipt. Dan. Vol. 3, p. 208, f. 85 (1910); Verrall, Ent. Mag. London, Vol. 48, p. 26 (1912).
- lanchoptera*, Pokorny, Verh. Zool. bot. Ges. Wien, Vol. 37, p. 394 (1887).

9. GENUS HOPLOPEZA, BEZZI

Hoplopeza, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301, 385 (1909).

Characters. — Black shining species, closely related to *Leptopeza*. Head round, occiput with few short bristles, ocellar bristles small; eyes contiguous above and below the antennæ in the male (the female unknown), bare; antennæ three-jointed, the last joint elongate, bearing a thickened pilose termi-

nal arista as long as the antenna; proboscis short and thick, slightly projecting, palpi small and rounded. Thorax but little arched, without discal bristles, two scutellars; pleuræ pollinose except the sternopleura. Abdomen long and cylindrical; pygidium small and rounded, beneath with six long bristles. Hind femora with a knee bristle, front tibiæ fimbriate within with hairs, hind tibiæ with some long apical spines, the lowermost curved, hind metatarsi spinulose above. Wings cuneiform, no anal angle, no stigma, pedicel of the second and third veins short, discal cell long, emitting two posterior veins, anal cell very short, the anal vein reflexed and abortive, anal vein complete.

Type species : *H. chloropa*, Bezzi, the original species.

Geographical distribution.

1. *H. chloropa*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 385, f. 10- 12 (1909). Peru.

10. GENUS SCELOLABES, PHILIPPI

Scelolabes, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 751 (1865); Reed, Ann. Univ. Chile, Vol. 78, p. 27 [1888] (*Scelobates*); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 116 (1889); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 301 (1909); Kertész, Cat. Dipt. Vol. 6, p. 104 (1909).

Characters. — Polished, testaceous species with raptorial hind legs. Head globose, eyes very narrowly separated on the front, face linear, basal joints of the antennæ short and subcylindrical, the third joint pubescent, long-conical, about twice as long as the basal two and terminated by a pubescent long slender arista; proboscis short and projecting obliquely forward, palpi ovate; ocellar triangle not elevated. Thorax rather stout and strongly arched, almost bare of bristles and hairs, scutellum with two long apical bristles, one long prealar black bristle present. Abdomen subcylindrical. Legs pubescent and bristly, anterior legs simple, hind femora much swollen, with numerous fine setulæ and setæ beneath and with irregular macrochaetæ, hind tibiæ geniculate and much shorter than their femora, middle tibiæ with four extensor bristles along basal half, pulvilli large. Wings with a rounded anal angle, costa stopping at the fourth vein, auxiliary vein very close to the first vein, first vein ending much beyond the middle of the wing, opposite end of discal cell, third vein simple, pedicel of the second and third veins very short, arising near the end of the basal cells, the latter longer than the discal cell, nearly coextensive, the vein limiting the second basal cell oblique, discal cell emitting two veins, the fourth vein obsolete, anal crossvein inflexed, anal vein evanescent.

Genotype and only species : *S. bivittatus*, Philippi.

Geographical distribution.

1. *S. bivittatus*, Philippi, Verh. Zool. Bot. Ges. Wien, Vol. 15, p. 751, pl. 28, f. 45 (1865); Bezzi, Ann. Mus. Hungar, Vol. 3, p. 458 (1905). — Pl. 5, Fig. 43.

11. GENUS LAMACHELLA, NOV. GEN.

Characters. — Polished, testaceous species with raptorial hind legs. Head globose, eyes of female separated on front and face, basal joints of antennæ short and cylindrical, third joint lanceolate, arista slender, pubescent, shorter than third joint; proboscis projecting obliquely forward, piercing, palpi slender, long, porrect; ocellar triangle elevated. Thorax strongly arched, almost bare, two small black prealar and two small scutellar bristles present. Abdomen subconical, terminal segments of

female decreasing in size but not forming an ovipositor. Legs pubescent, anterior legs simple, devoid of bristles, hind femora much swollen, with numerous irregular thorn-like setulae and setae beneath, hind tibiae shortened and geniculate, pulvilli large. Wings with prominent anal angle, costa evanescent beyond fourth vein, auxiliary vein very close to the first vein with which it combines, first vein ending much beyond the middle of the wing, third vein simple, pedicel of second and third veins very short, arising near the middle of the basal cells, discal cell emitting two veins, the fourth and fifth, second basal cell slightly longer than the first, its apical vein nearly transverse, anal crossvein perpendicular to the weak but complete anal vein.

Genotype : *L. univittata*, the following species.

Geographical distribution.

1. *L. univittata*, nov. sp. (1).

Kamerun.

12. GENUS STENOPROCTUS, LOEW

Stenoproctus, Loew, Oefv. Vet. Akad. Förh. Vol. 15, p. 340 (1858); Dipterenf. Südafr. Vol. 1, p. 261 (1860); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 116 (1889); Kertész, Cat. Dipt. Vol. 6, p. 12. (1909).

Acanthopeza, Becker, Ann. Soc. Ent. France, Vol. 83, p. 122 (1914).

Characters. — Black shining species measuring three millimeters, with hyaline wings and yellowish legs. Head globose, eyes of the female completely contiguous on the front; third joint of the antennae cylindrico-conical, twice as long as the combined basal joints, ending in a straight slender, nearly bare arista which is as long as the third joint and is tipped with a bristle; proboscis projecting horizontally forward, nearly as far as the head-height, palpi linear. Thorax rather stout and highly arched, shorter than the abdomen, two scutellar bristles present. Hind legs lengthened, their femora incrassate and spinose beneath, hind tibiae simple and curved, anterior legs simple. Wings with a prominent anal angle, first vein ending beyond the middle of the wing, a pronounced stigma present, second vein broadly sinuous but not steeply curving into the costa, pedicel of the second and third veins long, arising toward the base of the basal cells, discal cell small, emitting two posterior veins, basal cells long, the anterior much longer and narrower than the posterior, anal crossvein perpendicular to the anal vein which attains the margin.

Type species : *S. unipunctatus*, Loew (Pl. 5, Fig. 44), the original genotype.

(1) *Lamachella univittata*, nov. sp. — Female. Length 3 mm. Head black, antennae and mouthparts yellow, thorax except for a median vitta yellow, abdomen black, legs yellow, halteres blackish. Proboscis one-half as long as the head-height, porrect, constructed for piercing, palpi of the same length, spatulate and porrect. Median vitta of the thorax blackish-brown, not sharply defined, scutellum and metanotum blackish, a small humeral bristle present. Pubescence of the legs black, front tibiae somewhat inflated, a little thicker than the middle pair, all the tibiae with some projecting extensor hairs among the incumbent pubescence, middle tibiae with a small yellow apical flexor bristle, hind femora much swollen, thickest at the middle, studded with numerous setulae beneath and with a row of setae along the posterior edge, hind tibiae three-fourths as long as their femora, tarsi not thickened. Wings hyaline, veins brown, an elongate stigma visible, first four sections of the costa proportioned 1 : 0.3 ; 0.3 : 0.15, basal cells of equal width, second basal longer than the first because of the obliquity of its crossvein, sections of the fourth vein, 1 : 1.1, of the fifth vein, 1 : 0.8.

One specimen, in the Museum of Comparative Zoology, Cambridge, Mass., received through Professor Roland Thaxter. Kamerun, Africa.

Geographical distribution.

1. *St. sylvaticus*, Becker, Ann. Soc. Ent. France, Vol. 83, p. 123 [1914] E. Africa.
(*Acanthopeza*).
2. *St. unipunctatus*, Loew, Oefv. Vet. Akad. Förrh. Vol. 15, p. 340 (1856); Cape of Good Hope.
Dipterenf. Südaf. p. 261, f. 45 (1860). — **Pl. 5, Fig. 44.**

13. GENUS BICELLARIA, MACQUART

Bicellaria, Macquart, Mém. Soc. Sc. Lille, 1823, p. 155 (1823); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 122 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 246, 261 (1903); Melander, Williston Man. N. Amer. Dipt. 3 ed. p. 225 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 300 (1909); Kertész, Cat. Dipt. Vol. 6, p. 13 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 514 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 20 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 43, 48 (1910).

Cyrtoma, Meigen, Syst. Besch. Vol. 4, p. 1 (1824); Macquart, Dipt. N. France, Vol. 3, p. 106 (1827); Hist. Nat. Dipt. Vol. 1, p. 359 (1834); Zetterstedt, Fauna Ins. Lappon. p. 533 (1838); Westwood, Gen. Syn. p. 133 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 329 (1842); Boitard, Man. Ent. Vol. 3, p. 326 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 115 (1851); Rondani, Dipt. Ital. Vol. 1, p. 152 (1855); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 564 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 76 (1862); Lioy, Atti Inst. Ven. 1864, p. 722 (1864); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 123 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390 (1895); Williston, Man. N. Amer. Dipt. p. 74 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 335 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 248 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 530 (1910).

Characters. — Rather small, greatly humpbacked, more or less opaque black species with no discal cell. Head globular, attached low to the thorax; eyes broadly contiguous above the antennæ in both sexes, bare, the upper facets large and separated from the lower by a horizontal line of demarcation; face long and narrow, no cheeks; occiput hairy but not bristly; antennæ located at the middle of the head, two-jointed, due to the fusion of the basal joints, the third joint elongate, somewhat compressed, usually somewhat bulbous below near the base, ending in a two-jointed thickened arista which is more or less shorter than the third joint and consists of a short basal and a lengthened apical segment; proboscis much shorter than the head, vertical, the labrum slightly incurved and pointed, palpi short, broad and decumbent. Thorax very large, provided with a greater or less number of fine bristles, posthumeral and lateral hairs usually quite evident, scutellum with about four bristles, acrostichals loosely biseriate; pleuræ bare. Abdomen slender, tapering, pygidium terminal, small and closed, the lateral valves oval and directed backward, ventral piece cleft, ending in a symmetrical two-tined fork. Legs rather long, hairy, often with long fine bristles, often the hind femora ciliate, the hind legs longest, usually with clavate tibiæ, hind metatarsi sometimes thickened. Anal angle of the wings rectangular, a distinct angulation at the axilla, costa stopping at the end of the third vein, basal bristles present or absent, auxiliary vein lying close to the first vein, third vein simple, anterior crossvein placed close to the fork of the second and third veins, no discal cell, the fourth vein interrupted at the anterior crossvein resuming again toward the tip of the wing as a weakened spur, the intercalary vein likewise weak and evanescent basally, second basal cell longer than the first, its crossvein very oblique, almost in line with the last section of the fifth vein, anal cell wider than the first basal, its crossvein reflexed and broadly angulate with the continuous anal vein.

Type species : *B. spuria*, Fallen (Pl. 5, Fig. 46), redescribed by Macquart as *nigra*, nov. sp. The species of *Bicellaria* are common in meadowlands during the summer month, especially to the North.

TABLE OF THE SPECIES OF BICELLARIA

1, Body brownish in color	2.
Ground-color of body and legs black	3.
2. Legs and halteres yellow	<i>B. RUFA</i> , Meigen.
Legs and halteres brown ; tines of pygidial ventral fork thick and truncate	<i>B. UVENS</i> , nov. sp. (1).
3. Hind tibiæ uniformly slender ; mesonotum of male velvety black and very gibbous ; wings of female hyaline.	<i>B. MELÆNA</i> , Haliday.
Hind tibiæ more or less thickened toward apex	4.
4. Hairs of forward part of notum almost as long as those behind, two vittæ more or less indicated	5.
Hairs of forward part of mesonotum short, no vittæ	6.
5. Abdomen dark gray, dull or slightly shining.	<i>B. PILOSA</i> , Lundbeck.
Abdomen satiny whitish in certain lights	<i>B. ALPINA</i> , Bezzi.
6. Hind metatarsi not at all thickened, legs rather short, twelve hairs in postero-dorsal row of hind femora ; pygidial fork narrowly U-shaped, tines moderately thick and tipped with a couple of microscopic hairs	<i>B. SPURIA</i> , Fallen.
Hind metatarsi more or less thickened	7.
7. Basal joints of hind tarsi but slightly thickened.	8.
Basal joints of hind tarsi of male distinctly thickened ; abdominal hairs black or brown ; legs long, eighteen very long hairs on antero-dorsal row of hind femora	10.
8. Halteres of male and female pale yellow ; wings subfuscous ; hairs of legs pale ; base of third antennal joint broadly ovate, arista nearly as long as the third joint ; ventral fork of pygidium U-shaped	<i>B. HALTERALIS</i> , Loew.
Halteres of male dark, of female either dark or pale ; arista usually much shorter than third antennal joint	9.
9. Wings white-hyaline, wide in female ; base of third antennal joint broadly oval	<i>B. DISPAR</i> , Oldenberg.
Wings more or less infumated	10.

(1) *Bicellaria uvens*, nov. sp. — Male. Length 3 mm. Blackish-brown, third antennal joint with rounded base and gradually tapering to apex, heavily pubescent ; arista equal to third joint ; occipital hairs black. Thorax completely covered with dark brown pollen, bristles black. Abdomen dull, hairs black, pygidium dusted, the ventral fork deeply excised with the prongs robust and wider than the excision. Legs normal, hairs black, about eighteen in the anterior dorsal row of the hind femora, hind tibiæ gradually clavate with many outstanding extensor setæ, hind metatarsi scarcely thicker than other joints. Halteres black, wings heavily infumated, stigma not differentiated.

Female. Last abdominal segments shining, halteres brown.

Numerous specimens from Fort Chimo, Ungava Bay, Hudson Straits, near northern Labrador (L. M. Turner), type in U. S. National Museum. The specimens appear to have been preserved in liquid which may account for the castaneous color of most of the specimens.

10. Tines of ventral fork of pygidium flattened 11.
 Tines of pygidial fork more or less cylindrical 12.
11. Pygidial fork widely and shallowly excised, the tines short triangular; abdominal hairs pale; bristles of hind tibiae fine . . . B. BREVIFURCA, nov. sp. (1).
 Pygidial fork narrowly and deeply excised, the tines long and blunt; abdominal hairs of male black; at least four outstanding bristles on hind tibiae B. PILIPES, Loew.
12. Tines of pygidial fork very long and thin 13.
 Tines of pygidial fork shorter and stouter 14.
13. Pubescence black; third antennal joint more than twice as long as wide, its elongate base tapering apically. B. ANGUSTIFURCA, nov. sp. (2).
 Hairs of abdomen and femora for most part pale yellow; third antennal joint less than twice as long as wide, its ovate base distinct from the tubular apex B. FURCIFER, nov. sp. (3).
14. Pygidial fork narrowly U-shaped, its tines tipped with microscopic hair (if tines are stubby, see *uvens*) 15.
 Pygidial fork broadly U-shaped, its tines tipped with a long hair; halteres of both sexes dark; base of third antennal joint ovate, apex tubular B. LONGIPES, Loew.

(1) *Bicellaria brevifurca*, nov. sp. — Length 3 mm. Black with faint brown coating, hairs and bristles black, the hairs of the abdomen pale. Facets of eyes moderately large above, about sixteen along the line of contiguity; under side of third antennal joint gently rounding into the apex, arista about two-thirds as long as this joint. Notum velvety brown, the anterior hairs short, four scutellars. Ventral fork of pygidium flat, M-shaped in outline. Hind femora rather short-ciliate, eighteen or more setae in anterior extensor row and twenty or more in anterior flexor row; hind tibiae subclavate, about twice as broad at end as at base, extensor bristles fine and uniform; hind metatarsi slightly thicker than the following joints. Halteres black. Wings infumated in male, grayish in female, stigma brown, fork of fourth vein usually open, the pedicel shorter than the fork.

About one hundred specimens, alpine parks of Mount Rainier, Washington, July to September.

(2) *Bicellaria angustifurca*, nov. sp. — Male. Length 3.2 mm. Very black, opaque; third antennal joint elongate and large, two times as long as deep, tapering from the rounded base to the apex without tubular tip, arista two-thirds the length of this joint. Hairs and bristles entirely black; pygidium small, ventral fork polished, very deeply cleft, the tines unusually long, slender, parallel on basal half and then diverging. Setae of both upper and lower surface of hind femora very long and abundant, about twenty-one in upper anterior row; hind tibiae gradually but decidedly clavate the extensor setae uniform and moderate, hind metatarsi but slightly thickened. Halteres thickened, wings very strongly infumated almost blackish brown, the stigma scarcely differentiated.

Female. Not opaque black but thinly coated with brown dust on notum. Abdomen subshining, pleurae cinereous, abdominal hairs brownish, last segment shining.

Types, Olympia, Washington, 22 June, 1920; six paratypes; Bellingham, Washington, Mount Hood, Oregon, Priest Lake and Moscow, Idaho (Melander).

(3) *Bicellaria furcifer*, nov. sp. — Length 2.75 mm. Black with faint brown coating, hairs and bristles generally black, those of lower occiput, abdomen and coxae and base of femora pale. Facets moderately large above, about sixteen in line of contiguity of the eyes; third antennal joint about twice as long as deep, the ovate base distinct from the tubular apex, arista about half the length of the third joint. Notum subshining, the hairs short in front, four brownish scutellar bristles; hairs of abdomen long. Tines of pygidial fork very long and thin, tipped with a microscopic hair. About fifteen setae in upper and lower rows on hind femora; hind tibiae subclavate, about three times as wide toward apex as at base, with two or three of the extensor hairs longer than the others; hind metatarsi scarcely thicker than the next joint. Halteres of male black, of female yellowish brown; hairs of calypteres brownish. Wings grayish hyaline, stigma brown, fork of fourth vein usually complete and shorter than its pedicel.

Type and allotype, Upper St. Regis River, Montana, 28 July, 1918. Nine paratypes, Yellowstone Park, several places, Wyoming; Jefferson Island and Perma, Montana; Craig's Mountain, Idaho; and Nelson, British Columbia, all collected by the author.

15. Base of third antennal joint elliptical; halteres of female pale;
middle tibiae with paired bristles at basal fifth and two-fifths;
four scutellars *B. INTERMEDIA*, Lundbeck.
Base of third antennal joint quadrate; bristles of middle tibiae
smaller; six or eight scutellars *B. LUGUBRIS*, nov. sp. (1)
16. Tines of the U-shaped pygidial fork long, thin and tipped with
microscopic hair *B. NIGRA*, Meigen.
Tines stronger and tipped with one long and several short hairs *B. PECTINATA*, nov. sp. (2)

Geographical distribution.

1. *B. alpina*, Bezzi, Ditterofaun. nivale, p. 75 (1918). Alps.
2. *B. angustifurca*, nov. sp. W. United States.
3. *B. ? aterrima*, Roser, Correspondenzbl. Landw. Ver. Würtemb. Stuttgart. C. Europe.
Vol. 1, p. 55 [1840] (*Cyrtoma*).
4. *B. brevifurca*, nov. sp. — **Pl. 8, Fig. 72g.** Washington.
5. *B. ? collina*, Philippi, Verh. Ges. Wien, Vol. 15, p. 768 [1865] (? *Cyrtoma*). Chile.
6. *B. dispar*, Oldenberg, Zool. Jahrb. Vol. 43, Syst. p. 221 (1920). Alps.
7. *B. furcifer*, nov. sp. — **Pl. 8, Fig. 72a.** W. North America.
8. *B. halteralis*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 206 : Cent. 2, E. United States.
No. 46 [1862] (*Cyrtoma*); Melander, Trans. Amer. Ent. Soc. Vol. 28,
p. 335 [1902] (*Cyrtoma*).
9. *B. intermedia*, Lundbeck, Dipt. Dan. Vol. 3, p. 25 (1910); Collin, Ent. N. Europe.
Mag. London (2), Vol. 24, p. 104 (1913).
nigra, Zetterstedt, part. Dipt. Scand. Vol. 1, p. 330, part. [1842] (*Cyrtoma*).
10. *B. longipes*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 206 : Cent. 2, No. 47 North America.
[1862] (*Cyrtoma*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 336,
f. 71 [1902] (*Cyrtoma*). — **Pl. 8, Fig. 72b.**
11. *B. lugubris*, nov. sp. — **Pl. 8, Fig. 72d.** W. United States.
12. *B. melana*, Haliday, Ent. Mag. Vol. 1, p. 158 [1833] (*Cyrtoma*); Walker, N. and C. Europe.
List Dipt. Brit. Mus. Vol. 3, p. 489 (1849); Ins. Brit. Dipt. Vol. 1,
p. 116 [1851] (*Cyrtoma*); Lundbeck, Dipt. Dan. Vol. 3, p. 22 (1910).
simplicipes, Zetterstedt, Dipt. Scand. Vol. 1, p. 331 [1842] (*Cyrtoma*); Bonsdorff,
Finnl. tvåv. Ins. Vol. 1, p. 157 [1861] (*Cyrtoma*); Schiner, Fauna Dipt.
Aust. Vol. 1, p. 76 [1862] (*Cyrtoma*); Wahlgren, Ent. Tidskr. Vol. 31,
p. 48 (1910); Collin, Ent. Mag. London (2), Vol. 24, p. 105 [1913] (*Cyrtoma*).

(1) *Bicellaria lugubris*, nov. sp. — Male. Length 2.75 mm. Very black, all hairs and bristles black. Upper facets large, about fourteen along the line of contiguity of the eyes. Base of third antennal joint rather quadrate, about equal in length to the slender apical part, arista more than two-thirds the length of the third joint. Anterior hairs of notum short, posterior four dorsocentrals longer than the others, six to eight scutellars. Pygidium narrowly U-shaped, tines moderately thick, about three times as long as width at middle, tips rounded and bearing a small hair. Hind femora appearing ciliate, with about eighteen setae in anterior flexor row and fifteen in extensor row, hind tibiae subclavate, their extensor hairs irregular with two or three longer than the others, hind metatarsi slightly thicker than the following joint. Halteres black. Wings infumated, stigma brown, fork of fourth vein open, the pedicel shorter than the fourth vein.

Nine males taken along Indian Creek in the northern part of Yellowstone Park, Wyoming, July 8, 1923. A female from the Gallatin Station in the northwestern part of Yellowstone Park, July 28, 1923, is probably the same species.

(2) *Bicellaria pectinata*, nov. sp. — Length 3.5 mm. Large black species with all hairs and bristles black. Upper facets large, about twelve along the line of contiguity of the eyes. Third antennal joint slender, the base ovate and rounding into the apical part, arista two-thirds the length of the third joint. Notum subshining, anterior hairs short, two dorsocentrals, four or six scutellars. Pygidium with rounded V-shaped incision on ventral fork, the tines moderately short and strong and tipped with one long and several short hairs. Setae of hind femora very long, about eighteen in the anterior extensor row and twenty-two in the flexor row; hind tibiae distinctly clavate, the extensor hairs irregular; hind metatarsi twice as thick as the second joint. Halteres black. Wings infumated, stigma brown, fork of fourth vein open, the pedicel subequal in length to the fourth vein beyond.

Thirty-four specimens, Ilwaco, Washington, May-September.

13. *B. nigra*, Meigen, Syst. Besch. Vol. 4, p. 3, pl. 33, f. 5 [1824] (*Cyrtoma*); Europe.
 Macquart, Dipt. N. France, Vol. 3, p. 108 [1827] (*Cyrtoma*); Hist.
 Nat. Dipt. Vol. 1, p. 360, pl. 8, f. 15 [1834] (*Cyrtoma*); Zetterstedt.
 Fauna Ins. Lappon. p. 533 [1838] (*Cyrtoma*); Blanchard, Hist. Nat.
 Ins. Vol. 3, p. 583 [1840] (*Cyrtoma*); Zetterstedt, Dipt. Scand. Vol. 1,
 p. 330, part. [1842] (*Cyrtoma*); Walker, Ins. Brit. Dipt. Vol. 1,
 p. 116 [1851] (*Cyrtoma*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19),
 p. 60 [1851] (*Cyrtoma*); Zetterstedt, Dipt. Scand. Vol. 13, p. 4997
 [1859] (*Cyrtoma*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 76 [1862]
 (*Cyrtoma*); Siebke, Nyt Mag. Naturvid. Vol. 14, p. 387 [1866]
 (*Cyrtoma*); Becher, Denkschr. Akad. Wiss. Wien. Vol. 45, p. 147,
 pl. 3, f. 12 [1882] (*Cyrtoma*); Becker, Berl. Ent. Zeitschr. Vol. 31,
 p. 133 [1887] (*Cyrtoma*); Strobl, Mitteil. Naturw. Ver. Steiermark,
 Graz, Vol. 29, p. 43 [1892] (*Cyrtoma*); Lundbeck, Dipt. Dan. Vol. 3,
 p. 26 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 48 (1910); Frey,
 Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 8 (1913).
14. *B. pectinata*, nov. sp. — **Pl. 8, Fig. 72 c.** Washington.
15. *B. pilipes*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 207: Cent. 2, No. 48 North America.
 [1862] (*Cyrtoma*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 336
 [1902] (*Cyrtoma*); Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 412
 [1900] (*Cyrtoma*). — **Pl. 8, Fig. 72 e.**
16. *B. pilosa*, Lundbeck, Dipt. Dan. Vol. 3, p. 27 (1910); Collin, Ent. Mag. N. Europe.
 Lond. (2), Vol. 24, p. 104 [1913] (*Cyrtoma*); Frey, Acta Soc. Sc.
 Fenn. Helsingfors, Vol. 37 (3), p. 9 (1913).
17. *B. rufa*, Meigen, Syst. Besch. Vol. 4, p. 3 [1824] (*Cyrtoma*); Macquart, C. Europe.
 Hist. Nat. Dipt. Vol. 1, p. 360 [1834] (*Cyrtoma*); Schiner, Fauna
 Dipt. Austr. Vol. 1, p. 76 [1862] (*Cyrtoma*); Dahl, Fauna Chorin,
 p. 464 (1912).
18. *B. spuria*, Fallen, Empid. Suec. p. 33 [1816] (*Empis*); Zetterstedt, Fauna N. and C. Europe.
 Ins. Lappon. p. 533 [1838] (*Cyrtoma*); Dipt. Scand. Vol. 1, p. 329
 [1842] (*Cyrtoma*); Walker, List Dipt. Brit. Mus. Vol. 3, p. 489
 [1849] (*Cyrtoma*); Zetterstedt, Dipt. Scand. Vol. 8, p. 3013 [1849]
 (*Cyrtoma*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 60 [1851]
 (*Cyrtoma*); Walker, Ins. Brit. Dipt. Vol. 1, p. 116, pl. 4, f. 6 [1851]
 (*Cyrtoma*); Zetterstedt, Dipt. Scand. Vol. 13, p. 4997 [1859] (*Cyr-*
toma); Pipping, Not. Sällsk. Fenn. Förh. Vol. 4, p. 114 [1858]
 (*Cyrtoma*); Nylander, Not. Sällsk. Fenn. Förh. Vol. 4, p. 247 [1858]
 (*Cyrtoma*); Bonsdorff, Fin. tväv. Ins. Vol. 1, p. 156 [1861] (*Cyrtoma*);
 Schiner, Fauna Dipt. Austr. Vol. 1, p. 76 [1862] (*Cyrtoma*); Siebke,
 Nyt Mag. Naturvid. Vol. 14, p. 381, 399 [1866] (*Cyrtoma*); Neuhaus,
 Dipt. March p. 68. 124 [1886] (*Cyrtoma*); Becker, Berl. Ent. Zeitschr.
 Vol. 31, p. 133 [1887] (*Cyrtoma*); Strobl, Mitteil. Naturw. Ver.
 Steiermark, Graz, Vol. 29, p. 42 [1892] (*Cyrtoma*); Wien. Ent. Zeit.
 Vol. 18, p. 12 [1899] (*Cyrtoma*); Mem. Soc. Esp. Hist. Nat. Vol. 3,
 p. 305 (1906); Lundbeck, Dipt. Dan. Vol. 3, p. 24, f. 4, 5 (1910);
 Wahlgren, Ent. Tidskr. Vol. 31, p. 48, f. 4 (1910); Bezzi, Ann.
 Mus. Hungar. Vol. 10, p. 464 (1912); Frey, Acta Soc. Sc. Fenn.
 Helsingfors, Vol. 37 (3), p. 8 (1913); Bezzi, Suppl. Ent. Vol. 3,
 p. 70 (1914). — **Pl. 5, Fig. 46.**
atra, Meigen, Syst. Besch. Vol. 4, p. 2 [1824] (*Cyrtoma*); Macquart, Dipt.
 N. France, Vol. 3, p. 108, pl. 3, f. 3 [1827] (*Cyrtoma*); Hist. Nat. Dipt.
 Vol. 1, p. 360 [1834] (*Cyrtoma*); Boitard, Man. Ent. Vol. 3, p. 326 [1843]
 (*Cyrtoma*).
sulcata, Zetterstedt, Dipt. Scand. Vol. 1, p. 331 [1842] (*Cyrtoma*); Bonsdorff,

Finl. tvåv. Ins. Dipt. Vol. 1, p. 157 [1861] (*Cyrtoma*); Siebke, Nyt. Mag. Naturvid. Vol. 12, p. 108 [1864] (*Cyrtoma*).
nigra, Macquart, Mém. Soc. Sc. Lille, 1823, p. 156 (1823); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 246 (1903).

19. *B. ? tibialis*, Roser, Correspondenzbl. Landw. Ver. Württenb. Stuttgart, C. Europe. Vol. 1, p. 55 [1840] (*Cyrtoma*).

20. *B. uvens*, nov. sp. — Pl. 8, Fig. 72 f.

Hudson Straits.

14. GENUS HOPLOCYRTOMA, NOV. GEN.

Characters. — Similar to *Bicellaria* in general structure and in neurulation but differing in the possession of stout and spinose hind femora and correspondingly strong hind tibiae. The hind femora are swollen and abundantly armed beneath with a mixture of spines and thorns. The hind tibiae are much shorter than the femora, not clavate but nearly straight and cylindrical, geniculate at the knee and carinate along the flexor edge. Apically they are somewhat obliquely truncate and closely fimbriate. The tines of the ventral piece of the pygidium are thick and bluntly rounded, the one on the right longer than the one on the left.

Genotype: *Bicellaria procera*, Loew (Pl. 2, Fig. 11). The two American species, *procera* and *femorata*, are closely related, differing from the species of *Bicellaria* in the same leg specialization that has been repeatedly developed in various groups of the *Empididae*.

Geographical distribution.

1. *H. femorata*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 84 : Cent. 5, No. 69 E. United States. [1864] (*Cyrtoma*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 335 [1902] (*Cyrtoma*).
2. *H. procera*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 85 : Cent. 5, No. 70 Alaska; Washington. [1864] (*Cyrtoma*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 335 [1902] (*Cyrtoma*). — Pl. 2, Fig. 11.

SUBFAMILY EMPIDINÆ

Characters. — Head globular, occiput little convex, in *Xanthempis* drawn out to a sort of cone; eyes bare except in *Parathalassius* and *Microphorella*, males dichoptic or holoptic, in the former case the facets are uniform or the anterior middle ones slightly enlarged, in the latter case the upper facets are more or less enlarged, eyes of the females always separated; face broad, often short and receding and then with the oral margin arched, in specialized forms of *Empis* and *Rhamphomyia* the face becomes narrow: front quadrate, often with small orbitals; antennæ three-jointed, the first joint usually as long as or longer than the globular second joint, in *Hormopeza* the basal joints fused, in *Ragas* the basal joints small, third joint conical and cylindrical, or (*Gloma*) reniform, or (*Hormopeza*) orbicular, or (*Apalocnemis*, *Opealocerata*) oval, tipped with a style of two to four joints, usually the style with a quadrate basal piece ending in a short bristle, sometimes the end piece of the style is longer and tapers, sometimes (*Gloma*, etc.) the antenna is furnished with a long thin arista; proboscis usually fitted for piercing, corneous, variable in length and direction, sometimes shorter than the head, sometimes in the flower-sucking species nearly as long as the body, palpi single-jointed. Thorax never greatly convex, usually the humeral, posthumeral and supra-alar and almost always the notopleural and scutellar bristles present, the acrostichals and dorsocentrals variable, the former almost never pronounced, the latter usually weak;

metapleural setæ absent or present. Pygidium terminal or more or less reflexed, when reflexed usually somewhat compressed; no ovipositor. Legs of moderate length, coxæ never long, sometimes the hind femora incrassate, middle tibiæ usually with apical bristles, and posterior tibiæ often furnished with sets of setæ. Wings more or less oblong, the anal angle usually quite distinct though often broadly rounded, alula never large, costa continuing around the wing or stopping at the fourth vein, auxiliary vein strong and always distinctly separated from the first, attaining the costa or distally evanescent, third vein forked or not, discal cell complete and emitting three veins, but in a few species of *Rhamphomyia* the posterior crossvein is absent, anal cell shorter than the second basal, the anal crossvein abruptly reflexed (except in *Parathalassius* where it is perpendicular), anal vein almost always separate from the anal cell, reaching the margin or abbreviated but always weak.

This subfamily connects to an astonishing degree with the Clinoceratinæ. In the *Microphorus* group the enlarged epipygium and small basal cells are quite suggestive of the Clinocerans. *Hilarempis* and the allied genera show so many traits of *Proclinopyga* and *Dipsomyia*, in the type of genitalia, chaetotaxy, neurulation and structure of wing, that there is certainly a close relationship between them. On the other hand *Proclinopyga* connects still more closely with *Clinocera*, as shown by the V-shaped front, narrowed face, mouthparts, structure of the thorax and abdomen and of the legs.

SYNOPSIS OF THE GENERA AND SUBGENERA OF THE EMPIDINÆ

- Basal and anal cells very small, third vein simple, costa continuing around the wing; male genitalia formed as a very large epipygium which is twisted to the right; thorax longer than the abdomen, robust and gibbous; fronto-orbital, posthumeral and intra-alar bristles present; arista one-fifth to three times the length of the third antennal joint, the latter often suddenly attenuated beyond the base and produced styliform; middle tibiæ with an apical spur, hind femora usually conspicuously ciliate* 2.
- Basal and anal cells never markedly short; male genitalia never thrown far forward over the abdomen nor twisted to the right; abdomen at least as long as the thorax; third antennal joint not abruptly constricted just beyond the base; eyes bare.* 5.
2. *Eyes of the male broadly contiguous along the front, bare, the upper facets larger than the lowermost; ocelli approximated; antennæ inserted below the middle of the head, distinctly three-jointed; face more or less excised at the oral margin; anterior dorsocentrals reduced in size; abdomen of the male with long hairs, the last segments of the female short, tubular; discal cell relatively broad, anal crossvein rounding, anal vein rudimentary, anal angle of the wing broadly rectangular, a strong alular fringe (genus *Microphorus*).* 3.
- Eyes of both sexes broadly separated along the front, pubescent, the uppermost facets smaller than the lower; ocelli distant; antennæ inserted above the middle of the head; the basal two joints fused; mouthparts short and vertical, not protruding; anterior dorsocentrals strong; abdomen of the male with short hairs, fifth segment of the female abdomen broadly triangular;*

- discal cell relatively narrow, its basal crossvein weakened in front, no stigma 4
3. Proboscis short, sometimes as long as the head, directed horizontally forward; third joint of the antennæ abruptly constricted, second joint setose; female with one small fronto-orbital; two or more notopleurals; costa with a basal bristle, stigma usually distinct. (Pl. 7, Fig. 63). Subgenus MICROPHORUS, Macquart.
- Proboscis short, not protruding beyond the oral margin, vertical; second antennal joint not setose; female with two fronto-orbitals; no basal bristle on the costa, no stigma. (Pl. 7, Fig. 62) Subgenus SCHISTOSTOMA, Becker.
4. Anal crossvein rounding, anal vein more or less rudimentary, anal angle poorly developed; eyes finely pubescent; face not broadened below, with only two oral hairs; two scutellars. Genus MICROPHORELLA, Becker.
- Anal crossvein perpendicular, base of the anal vein strong, anal angle distinct; eyes densely hairy; face very narrow beneath the antennæ, broadened below, more or less hairy; hairs of the abdomen coarse; four or six scutellars Genus PARATHALASSIUS, Mik.
5. Proboscis directed horizontally or obliquely forward, either short or long, palpi porrect; eyes of the male contiguous above the antennæ, the upper facets largest; face broad, arched and receding from directly beneath the antennæ, the oral margin therefore widely arched, facial orbits distinct; auxiliary vein complete, ending in the costa, anal angle strongly rectangular, with an axillar excision, costa usually thin on the hind margin; bristles of the body well developed. 6
- Proboscis long and thick, directed obliquely forward, palpi incumbent; eyes widely separated, facets uniform; antennæ inserted low, the face short but vaulted, facial orbits not differentiated, third antennal joint large and oval, without arista or style; auxiliary vein incomplete at tip, third vein furcate, anal angle weak, no axilla, costa encompassing wing; bristles of body weak; hind tibiæ geniculate; Clinocera-like flies. (Pl. 2, Fig. 16) Genus BROCHIELLA, nov. gen.
- Proboscis vertical or somewhat reflexed, sometimes slightly projecting, in which case the relatively narrow and lengthened face is characteristic; face not immediately receding but flat or convex below the antennæ; style shorter than the third antennal joint; pygidium usually not open. 12.
6. Antennæ apparently with only two joints, the outer joint broadly orbicular; anal crossvein not greatly reflexed, the anal cell as broad as the second basal; tibiæ with several sets of bristles; pleuræ bare; pygidium globose, the dorsal valves large, erect and simple, the lateral valves very convex and posteriorly with two blunt prongs. (Pl. 8, Fig. 76) Genus HORMOPEZA, Zetterstedt.
- Antennæ distinctly three-jointed, the last joint more or less elongate, never orbicular; anal crossvein abruptly reflexed, the

- anal cell narrow; pygidium with exposed dorsal processes, the dorsal valves usually narrow and fissate 7.
7. First antennal joint longer than the second and both strongly setose; style aristiform, indistinctly four-jointed, the basal joint minute, the terminal like a short hair, the intermediate joints lengthened and moderately thick; palpi strongly setose; basal valve of the pygidium ovate, setose and not fissate; hind margin of the wing somewhat thickened 8.
- Antennæ not setose, at most with a few fine basal hairs, furnished with a short style or a long arista; palpi not strongly setose; metapleuræ bare; basal valve of the pygidium irregular and fissate; veins bare, wings scarcely margined behind 9.
8. Metapleuræ bare; veins bare. (Pl. 6, Fig. 53). Genus TIMALPHES, nov. gen.
- Metapleuræ with a cluster of setæ; first second and sometimes third veins closely setulose on the upper surface and the second underneath. (Pl. 5, Fig. 50; Pl. 6, Fig. 51) Genus OREOGETON, Schiner.
9. Proboscis short, scarcely protruding beyond the head; third antennal joint short, furnished with a lengthened arista which is twice as long as the antenna and whose basal segment is narrowly tubular, followed by a very long geniculate short-pubescent portion and ending in a distinct fine hair; third vein furcate, discal cell of moderate size. 10.
- Proboscis long, extending obliquely forward, palpi linear; third antennal joint lengthened cylindrical, the terminal style short and thick and tipped with a short but distinct bristle; discal cell large and blunt 11.
10. Arista terminal, the third joint of the antennæ small and globular. (Pl. 6, Fig. 56) Genus APALOCNEMIS, Philippi.
- Arista dorsal, inserted near the base of the reniform third antennal joint; calypteres lobose and thickly margined. (Pl. 6, Fig. 52; Pl. 8, Fig. 73. 74) Genus GLOMA, Meigen.
11. Third vein furcate. (Pl. 6, Fig. 59) Genus ITEAPHILA, Zetterstedt.
- Third vein simple. (Pl. 8, Fig. 80) Genus ANTHEPISCOPUS, Becker.
12. Metapleuræ bare of hairs or bristles; costa encompassing the entire wing, axillary incision rarely distinguishable, usually obtuse or entirely wanting; style ending in a distinct short bristle (except in *Philetus*); usually the bristles of the body, head and legs weak; male genitalia usually more or less of the form of an epipygium with compressed ventral keel. 13.
- Metapleuræ bearing a variable number of hairs or bristles in front of the halteres; costa stopping at the tip of the wing, or at least greatly thinned on the hind margin, auxiliary vein straight, not reaching the costa, axillary incision sharp; eyes of male contiguous above the antennæ, except in some species of *Empis* and *Rhamphomyia*; style not ending in a distinct thin short bristle; usually the bristles of the head, body and

- legs strong; pygidium rarely reflexed and not carinate beneath.
(If costa encompasses wing and front is broadly V-shaped,
see *Proclinopyga* in the *Clinoceratinae*) 23.
13. Auxiliary vein complete, ending in the costa 14.
Auxiliary vein evanescent at the end, not attaining the costa 17.
14. Eyes of the male contiguous, upper facets largest; basal joints
of the antennæ minute, first joint of the style very thick; pro-
boscis strong, the labrum inflexed; face short, epistome broadly
receding; anal angle of the wing strong; anal vein meeting the
under side of the anal cell, anal crossvein short; pygidium
showing dorsal appendages. (Pl. 8, Fig. 84) Genus *RAGAS*, Walker.
Eyes of the male broadly separated, middle facets largest; first
antennal joint distinct; face not short; pygidium not open 15.
15. Auxiliary vein bending forward at the end to meet the costa, anal
angle prominent, anal crossvein reaching nearly halfway to
the base of the anal cell, anal vein separate from the under
side of the anal cell, fork of the third vein long; at least
fronto-orbital and lateral thoracic bristles evident; front
metatarsi of the male almost always enlarged; pygidium
compressed and directed forward over the abdomen; palpi
cylindrical and upturned or slightly clavate. (Pl. 8,
Fig. 55) Genus *HILARA*, Meigen.
Auxiliary vein almost straight, not bending forward to meet the
costa, anal angle broadly rounded, anal crossvein short, anal
vein meeting the under side of the anal cell or obsolete, fork of
the third vein short; metatarsi simple; bristles rarely evident;
pygidium globose 16.
16. Antennæ tipped with a short two-jointed arista whose basal seg-
ment is one-fourth the distal; dorsocentral, scutellar and
lateral bristles present; ocelli located in front of the vertex,
antennæ below the middle of the head; pygidial valves directed
backward. (Pl. 7, Fig. 66; Pl. 8, Fig. 78, 81). Genus *PHILETUS*, nov. gen.
Antennæ tipped with a short two-jointed style, whose basal seg-
ment is longer than the terminal stubby bristle; thoracic
bristles almost wanting; ocelli located on the vertex, antennæ
at the middle of the head; pygidial valves erect. (Pl. 7,
Fig. 61) Genus *HESPEREMPIS*, Melander.
17. First vein thickly beset with hairs along its entire length;
mesonotum clothed with short hairs, mesopleuræ and ptero-
pleuræ sometimes hairy; proboscis as long as the head; males
dichoptic; axillary angle of the wing strong, anal angle well
developed. (Pl. 2, Fig. 15) Genus *PHLEBOCTENA*, Bezzi.
All the veins bare; mesopleuræ and pteropleuræ bare 18.
18. Eyes of the male contiguous on the front; abdomen very short;
third vein forked, anal angle well developed; third joint of
the antennæ long and conico-cylindrical, style three-jointed,

- the basal joint small, the middle joint long, the terminal joint short and bristle-like. (Pl. 2, Fig. 14)* Genus DEUTERAGONISTA, Philippi.
Eyes of both sexes widely separated; abdomen evidently longer than the thorax; anal angle of wing usually broadly rounded. 19.
19. *Proboscis twice as long as the head; almost entirely devoid of hairs and bristles; third vein forked; third joint of the antennæ conical.* Genus TOREUS, Melander.
Proboscis about as long as the head; at least the lateral bristles of the thorax more or less developed 20.
20. *Submarginal cell closed by the erect fork of the third vein; third antennal joint expanded nearly oval at base and narrowly drawn out at apex, style very long and aristiform; legs very slender; proboscis with long hairs. (Pl. 8, Fig. 83)* Genus TENONTOMYIA, White.
Submarginal cell open; antennæ of other conformation, style shortened; proboscis bare 21.
21. *Hind femora thickened and longer than their geniculate tibiæ; third joint of the antennæ very long, gradually tapering, almost cylindrical. (Pl. 6, Fig. 58).* Genus HAPLOMERA, Macquart.
Hind femora and tibiæ not modified; third joint of the antennæ conical 22.
22. *Third vein forked; front metatarsi of male often enlarged. (Pl. 6, Fig. 54)* Genus HILAREMPIS, Bezzi.
Third vein simple; tibiæ of the female without bristles. (Pl. 6, Fig. 60) Genus ATRICHOPLEURA, Bezzi.
23. *Third antennal joint short-ovate, with aristiform style three times its length; anal angle of wing undeveloped, axillary incision weak, basal cells shorter than discal, first vein ending before middle, third vein with long erect fork, fourth and intercalary veins evanescent; thorax strongly convex, bristles reduced; ovipositor compressed; shining yellow species.* Genus OPEATOCERATA, nov. gen.
Third antennal joint lengthened, longer than the style; base of wing better developed, the anal angle usually full, the axillary incision usually deep, first vein ending beyond the middle; if yellow species not polished 24.
24. *First antennal joint nearly or quite as long as the third, the antennæ located high up on the head; brilliant metallic tropical species usually with the legs variously modified* 25.
First antennal joint not lengthened, much shorter than the third joint, the antennæ located at the middle or but little above the middle of the head. 26.
25. *Arista much shorter than third antennal joint; body pilose; third vein with erect fork. (Pl. 2, Fig. 13)* Genus LAMPREMPIS, Wheeler & Melander.
Arista thick and nearly as long as remainder of antenna; thorax not pubescent; third vein simple. (Pl. 2, Fig. 12). Genus PORPHYROCHROA, nov. gen.
26. *Robust hairy species, the face furnished with hairs; fringe of the calypteres rudimentary* 27.
Face bare; calypteres fringed with hairs, rarely the fringe short. 28.

27. *Third vein furcate* Genus EMPIMORPHA, Coquillett.
Third vein simple (Pl. 6, Fig. 57). Genus NEOCOTA, Coquillett.
28. *Third vein furcate* (Genus EMPIS, Linnæus.) 29.
Third vein simple. (Genus RHAMPHOMYIA, Meigen.) 41.
29. *Dorsocentrals uniserial, even in the middle of the dorsum, acrostichals usually absent, when the dorsocentrals occur in more than one row the males are dichoptic* 30.
Dorsocentrals bi- or pluriserial, at least along the middle of the row, acrostichals usually present, when but one row of dorsocentrals present the males are holoptic 35.
30. *Eyes of both sexes separated or at most subcontiguous, the facets small and uniform.* 31.
Eyes of the male contiguous, the upper facets enlarged; no acrostichals. 34.
31. *No propleural or notopleural bristles, metapleural hairs few, short and stiff, anal lobe of the wing rounded; hind femora not thickened* 32.
Propleural and notopleural bristles present; head round; anal angle of the wing rectangular. 33.
32. *No acrostichal setulæ; head almost always pear-shaped, the occiput drawn out; more or less yellow species* Subgenus XANTHEMPIS, Bezzi.
Acrostichal setulæ occurring as a single median row, rarely absent or closely biserial; head globose, the occiput not conical; cinereous black species, the hind knees of the male usually with strong apophyses Subgenus ENOPEMPIS, Bigot.
33. *Hind femora strongly thickened; metapleural hairs filiform; black species.* Subgenus ANACROSTICHUS, Bezzi.
Femora not thickened; metapleural hairs setiform; largely yellow species Subgenus PYRREMPIS, nov. subgen
34. *Discal cell blunt apically; male with silvery pruinosity; scutellar bristles cruciate.* Subgenus ARGYRANDRUS, Bezzi.
Discal cell sharp apically; male not pruinose; scutellar bristles not cruciate. Subgenus HAPLOMERINX, Bezzi.
35. *Fourth vein interrupted before the margin of the wing, fork of third vein short and nearly erect, discal cell blunt, anal angle rectangular; eyes of the male contiguous; femora not thickened; legs of female pennate; acrostichals sometimes wanting.* . . . Subgenus COPTOPHLEBIA, Bezzi.
Fourth vein reaching the margin, in livida the fourth and intercalary veins interrupted at the margin; acrostichals present, bi- or pluriserial 36.
36. *Anal angle of the wing broadly rounded; face narrow; eyes of both sexes narrowly separated, in the males sometimes subcontiguous; one presutural bristle; body shining black, with fine pile and reduced bristles; hind legs long, the metatarsi more or less swollen* Subgenus LISSEMPIS, Bezzi.
Anal angle not obtuse but more or less rectangular; face broad,

- eyes of the female broadly separated; usually more than one presutural bristle present 37.
37. Eyes of the male broadly contiguous, the upper facets larger than the lower; hind femora not thickened 38.
- Eyes separated, rarely approximated in the male on the middle of the front, always with small uniform facets; hind femora thickened 40.
38. Discal cell apically blunt; legs of the female usually more or less pennate, of the male the front or hind metatarsi or both more or less enlarged; generally smaller species. (Pl. 5, Fig. 48, 49) Subgenus EMPIS, Linnæus, s. str.
- Discal cell apically more or less narrowed; legs of the female not pennate; of the male the metatarsi not thickened 39.
39. Delicate, slender, long-legged species; face narrow, palpi bare, proboscis very long and thin, projecting obliquely forward; thorax not pubescent, acrostichals few; pygidium small and terminal; leg bristles undeveloped. Subgenus ACALLOMYIA, nov. subgen.
- Robust, generally larger species; face broad, palpi usually heavily hairy; thorax usually pubescent; pygidium stout; legs bristly. Subgenus PLATYPTERA, Meigen.
40. Segments of the abdomen with strong lateral bristles; humeral, propleural and metapleural bristles very strong Subgenus POLYBLEPHARIS, Bezzi.
- Abdominal segments without strong bristles; humeral, propleural and metapleural bristles not unusually strong. (Pl. 5, Fig. 47) Subgenus PACHYMERIA, Stephens.
41. Third antennal joint greatly lengthened, the antennæ about twice as long as head; ocellar triangle not raised, the ocellar bristles weak; body narrow, legs slender; no evident dorsocentrals or acrostichals; wings small, with very obtuse to rectangular axillar incision, alula almost wanting; eyes of male separated. Subgenus LUNDSTROEMIELLA, Frey.
- Third antennal joint not lengthened, the antennæ less than twice as long as the head; ocellar triangle developed, with evident ocellar bristles 42.
42. Small delicate species with long slender legs; dorsocentral bristles in a single row, acrostichals present or absent; color of thorax differing in male and female, or uniformly yellow in both sexes, axillar incision of wings blunt to somewhat pointed; eyes of male contiguous; pygidium small and closed Subgenus HOLOCLERA, Schiner.
- Body more robust; legs stronger, acrostichals present; thorax of male and female similarly colored, rarely (in American species) yellow 43.
43. Axillar incision of wings obtuse to rectangular, rarely somewhat pointed; pygidium usually open, penis often filiform and projecting; hind femora not spinose beneath. 44.
- Axillar incision rather acute; pygidium rather small or else strongly bulbous, penis usually short and thick, rarely filiform and extended 45.

44. *Eyes of male separated; discal cell of female often more or less broadened; hairs of abdomen mostly white or brown; dorsocentrals usually weak, hair-like and in several rows; legs with few bristles, those of female not feathered* Subgenus MEGACYTTARUS, Bigot.
Eyes of male contiguous; discal cell of female not widened; dorsocentrals usually in one or two rows, if short and in several rows then the thorax is shining black; legs of female sometimes feathered Subgenus PARARHAMPHOMYIA, Frey.
45. *Pygidium vesiculate above or broadly deformed, the seventh tergite usually set in the wide sixth, often with two prongs below and with two bunches of yellow bristles on last sternite; thorax usually opaque, dorsocentrals hair-like, multiseriate, scutellars numerous; wings of female usually rather broadened and brown; hind femora rarely setose below* Subgenus DASYRHAMPHOMYIA, Frey.
Pygidium of other form, usually small, half-open, with short thick penis; hind femora of both sexes usually more or less bristly below Subgenus RHAMPHOMYIA, Meigen. s. str.

I. GENUS PARATHALASSIUS, MIK

Parathalassius, Mik. Wien. Ent. Zeit. Vol. 10, p. 217 (1891); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 255, 260 (1903); Melander, Williston N. Amer. Dipt. p. 224 (1908); Becker, Wien. Ent. Zeit. Vol. 28, p. 25-27 (1909); Kertész, Cat. Dipt. Vol. 6, p. 101 (1909).

Characters. — Small robust silvery gray pruinose species with white bristles. Head longer than broad, occiput rather flattened, eyes of both sexes widely separated on the front, approaching just beneath the antennæ so as there to narrow the face, more in the male and less in the female, and then again diverging below, anterior and central facets large, the uppermost facets minute, eyes strongly pubescent, especially below, where in the male the hairs give a glistening sheen to the eyes; face concave above, convex below, the oral margin at the lowest level of the eyes and not excised, fringed especially in the male with white hairs; basal joints of the antennæ fused and nearly bare, the third joint pyriform, with a slender two-jointed arista which is as long as the antenna itself; proboscis very short, tubular and thick, not or scarcely projecting; ocelli widely separated, not elevated, ocellar bristles distant and diverging, a pair of strong converging fronto-orbitals; bristles of the upper occiput moderately strong, below a mystax of coarse white hairs present. Thorax stout, not highly arched, five or six strong dorsocentrals, one posthumeral, several supraalar, two or more scutellars, the middle pair distant; pleuræ uniformly and densely pruinose and devoid of hairs. Abdomen thick and short, densely pruinose, its hairs coarse, only moderately long; epipygium very large, tumid, globose, twisted to the right, its under parts coarse and complicated; fifth segment terminating the abdomen of the female, the apical segments retracted. Legs simple, pruinose, the femora more or less ciliate, middle tibiæ with an apical bristle. Wings narrow, with parallel sides, costa continuing around the entire wing, several basal bristles and costal setulæ present, third vein simple, discal cell narrow and long, its basal crossvein abortive, anal crossvein straight and perpendicular, anal vein angulate at the crossvein and strong halfway to the margin, anal angle broadly rounded, no alula, the alular hairs moderately long; calypteres with straight margin.

Type species: *P. Blasigii*, Mik, the original species. Judged by the course of the anal crossvein this genus should be located in the Ocydromiinae, but as all the other characters clearly point to

the *Microphorus* group it follows that the perpendicular crossvein has been independently developed in *Parathalassius*. The species of the genus frequent the sands of the seashore, which habit accounts for their white bristles and silvery gray color.

Geographical distribution.

1. *P. Aldrichi*, Melander, Ent. News, Philad. Vol. 17, p. 374, fig. (1906). California, Washington.
2. *P. Blasigii*, Mik, Wien. Ent. Zeit. Vol. 10, p. 217 (1891); Becker, ibidem, Vol. 28, p. 29 (1909). S. Europe; N. Africa.
alter, Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 119 [1907] (*Schistostoma*).
3. *P. candidatus*, Melander, Ent. News, Philad. Vol. 17, p. 375 (1906). Washington.
4. *P. Melanderi*, Cole, Report Laguna Marine Labor. Vol. 1, p. 154, f. 88 (1912). California.

2. GENUS MICROPHORELLA, BECKER

Microphorella, Becker, Wien. Ent. Zeit. Vol. 28, p. 28 (1909).

Characters. — Small opaque black bristly species with the eyes separated in both sexes and with the anal angle of the wing reduced, the legs and halteres always black. Front broad in both male and female, with a pair of converging strong fronto-orbital bristles, ocellar triangle not elevated, the ocelli widely spaced apart, ocellar bristles strong and distant from each other; face long, with parallel sides, narrower than the front, no cheeks; eyes with microscopic pubescence, the lower facets of the male very slightly larger than the upper; antennæ inserted above the middle of the head, two-jointed as the basal joints are fused, the basal joint without bristles, the outer joint conical, pyriform or cylindrical, pubescent, with a rather thick, two-jointed apical arista, which is geniculate beyond the minute basal joint; mouthparts very short, not protruding, fleshy, palpi small, elongate oval and tipped with a single hair; occiput hairy the upper part setose and with stronger vertical bristles. Thorax large, robust, longer than the abdomen, with a complete series of about six strong dorsocentrals, acrostichals biseriata and biseriata setulæ present between the dorsocentral and supraalar bristles, one strong posthumeral, one notopleural, two scutellar bristles; pleuræ bare, but opaque pollinose. Abdomen thick, its hairs sparse and very short; pygidium enormously enlarged, sometimes as large as the remainder of the abdomen, twisted to the right, globular, completely enclosed above, the fourth ventral more or less excised medially along its hind margin; no ovipositor, the last segments of the female abdomen short and broad and margined with bristles. Legs slender, in the male often deformed, especially the tarsi, middle tibiæ with a short apical spur, hind femora more or less ciliate below. Wings rather pointed, broadest at the middle, the hind angle greatly reduced and not rectangular, costa encompassing the entire wing, its basal bristle strong, no stigma, auxiliary vein distinct, usually shortened, first vein ending beyond the middle of the wing, third vein simple, discal cell narrow, its basal crossvein weakened, the posterior crossvein very oblique, basal cells minute, anal crossvein round, anal vein present or absent, no alula and almost no alular hairs; fringe of the calypteres weak.

Type species: *M. præcox* Loew, apparently a very rare form and the only species known to Becker. The American species are closely related to each other but are easily recognized by the peculiar secondary sexual characters of the males. They occur in the grass and bushes along streams. Becker proposed *Microphorella* as a subgenus of *Microphorus*. As shown in the table of genera the genus is much more closely related to *Parathalassius*, but is distinct from both, and is well entitled to generic rank.

TABLE FOR THE IDENTIFICATION OF MALES OF MICROPHORELLA

1. Third antennal joint long and cylindrical; anal vein completely wanting; auxiliary vein ending opposite the end of the discal cell. *M. PRÆCOX*, Loew.
Third joint of the antennæ conical or pyriform; base of the anal vein indicated as a fold; auxiliary vein very short, ending before the middle of the discal cell 2.
2. Hind trochanters with a spine-tipped tubercle; hind femora closely ciliate with bristles beneath; third joint of the antennæ more or less conical 3.
Hind trochanters not tuberculate; hind femora with short or sparse cilia; third antennal joint attenuated at the end; ventral processes of the pygidium yellowish-brown 4.
3. Tubercle of the hind trochanters as long as the trochanter and clavate; hind tibiæ with erect hairs; ventral processes of the pygidium yellowish brown *M. TUBERIFERA*, nov. sp. (1).
Tubercle of the hind trochanters small and cylindrical; hairs of the hind tibiæ not unusual; ventral processes of the pygidium black. *M. ACROPTERA*, nov. sp. (2).
4. Front tarsi with white sole, hind tarsi compressed, the joints lobate above; hind femora with five long flexor bristles; third joint of the antennæ densely pubescent beneath. *M. ORNATIPES*, nov. sp. (3).

(1) *Microphorella tubifera*, nov. sp. — Male. Length 2 mm. Opaque black with a brownish tinge. Outer antennal joint elongate oval, one-half longer than wide, with very short pubescence, the arista nearly twice as long. Six strong dorsocentrals, the lateral setulæ reduced, scutellum with a minute lateral bristle. Abdomen opaque, pygidium large and bulbous, underneath with relatively large brownish processes. Legs hairy, hind trochanters with a long trumpet-shaped tubercle bearing a blunt spine in front, front femora not ciliate, hind femora with fifteen moderate bristles along the antero-flexor edge, middle tibiæ tipped with several bristles, hairs of the hind tibiæ outstanding, tarsi simple but rather stout, the joints decreasing in length but the last joint as long as the third. Wings narrow, with a strong brownish tinge, first vein ending opposite the apex of the discal cell, sections of the fourth vein proportioned 3 : 3 : 10 : 13, of the fifth vein 2 : 1, anal vein short but strong.

Female. Similar except for the blunt abdomen, absence of the tubercle of the trochanters and lack of the femoral bristles.

One specimen of each sex: Palo Alto, California, March, 1895, received from Professor R. W. Doane.

(2) *Microphorella acroptera*, nov. sp. — Male. Length 1.5 mm. Opaque lead-black, the abdomen subshining. Third joint of the antennæ broadly oval, with an apical cylindrical process one-third the length of the basal portion, arista less than twice as long as the third joint. Abdomen with almost a brassy tinge, pygidium rather shining, large and inflated, its ventral processes entirely black. Hind trochanters with a short spine-tipped tubercle, anterior femora not ciliate, hind femora with fourteen bristles which are longer than the diameter of the femur, middle tibiæ with several minute apical bristles, tarsi simple, the joints decreasing in length but the last two subequal. Wings with very light infuscation, two and two-thirds times as long as broad, sections of the fourth vein proportioned 3 : 3 : 10 : 13, of the fifth vein 1 : 0.6, anal vein practically wanting.

Female. Abdomen with bristly blunt termination, femora not ciliate, trochanters not tuberculate.

Type from Pullman, Washington, May 30, 1913. The species occurs also in California. I have received specimens from San Jose and from Berkeley Hills, the latter from E. T. Cresson, Jr.

(3) *Microphorella ornatipes*, nov. sp. — Male. Length 1.75 mm. Black, uniformly coated with opaque olive gray pollen. Third joint of the antennæ densely pubescent with yellow hairs, pyriform, two-thirds longer than broad, constricted on the outer two-thirds, the arista longer than the third joint; palpi with a long brown hair. Six strong dorsocentrals, and two intra-alars besides the usual other bristles. Fifth, sixth and seventh segments of the abdomen progressively smaller, the pygidium lying to the right of these segments and provided underneath with many short filamentous yellow processes. Front femora with about ten cilia beneath, front tibiæ enlarged apically, almost trumpet-like, front tarsi yellowish within, the metatarsi as long as the remainder of the tarsus, slender, sinuous, the last four joints almost equal in length, the fifth joint flattened; hind trochanters not spined, hind femora with about seven long flexor bristles, hind tarsi compressed, the metatarsus slender and nearly as long as the remainder of the tarsus, the other joints subequal and lobosely carinate above. Wings with slight infuscation, no stigma, first vein terminating opposite the end of the discal cell.

Female. Abdomen with a blunt tip, legs simple.

One specimen of each sex: Kendrick, Idaho, received from Dr. J. M. Aldrich.

- Front tarsi black, hind tarsi not lobate; hind femora without conspicuous bristles; pubescence of the third antennal joint not very dense 5.
5. Last joint of all the tarsi two or three times as long as the preceding joint, the front tarsi uniformly thickened; base of the anal vein distinct *M. LONGITARSIS*, nov. sp. (1).
- Last tarsal joint not elongate, subequal to the preceding joint; only the basal joint of the front tarsi swollen; anal vein indistinct *M. CHIRAGRA*, nov. sp. (2).

Geographical distribution.

- | | |
|---|-------------------|
| 1. <i>M. acroptera</i> , nov. sp. | W. United States. |
| 2. <i>M. chiragra</i> , nov. sp. | Washington. |
| 3. <i>M. longitarsis</i> , nov. sp. | Idaho. |
| 4. <i>M. ornatipes</i> , nov. sp. | Idaho. |
| 5. <i>M. præcox</i> , Loew, Zeitschr. Ent. Breslau, Vol. 14, p. 47 [1863] (<i>Microphorus</i>);
Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 93 [1892]
(<i>Microphorus</i>); Becker, Wien. Ent. Zeit, Vol. 28, p. 25, fig. (1909). | C. Europe. |
| 6. <i>M. tubifera</i> , nov. sp. | California. |

3. GENUS MICROPHORUS, MACQUART

Microphorus, Macquart, Dipt. N. France, Vol. 3, p. 139 [1827] (*Microphor*); Hist. Nat. Dipt. Vol. 1, p. 345 (1834); Zetterstedt, Dipt. Scand. Vol. 1, p. 253 [1842] (*Microphora*); Boitard, Man. Ent. Vol. 3, p. 322 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 113 (1851); Rondani, Dipt. Ital. Vol. 1, p. 151 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 563 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 79 (1862); Lioy, Atti Inst. Sc. Veneto, Venezia, 1864, p. 602 (1864); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 33-50 (1864); Nowicki, Gel. Ges. Krakau, Vol. 42, p. 72 (1871); Loew, Syst. Besch. Eur. Dipt. Vol. 2, p. 250 (1871); Beling, Arch. Naturg. Berlin, Vol. 48, p. 240 (1882); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 118 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 332 (1902);

(1) **Microphorella longitarsis**, nov. sp. — Male. Length 1.6 mm. Black, opaque, coated with dark slaty brown pollen. Lower part of the face tuberculate, third joint of the antennæ pubescent beneath, suddenly constricted at its middle, one-half longer than broad and about half as long as the arista. Pygidium shining along the interior edge. Trochanters not tuberculate, front and hind femora weakly ciliate, joints of the front tarsi thickened and quadrate, first three joints together as long as their tibia, the fourth joint shorter than broad and one-third as long as the fifth joint, middle tibiae with an apical spur, posterior tarsi similar to the front ones but less thickened. Wings long and narrow, nearly three times as long as broad, lightly infumated, sections of the fourth vein proportioned 3 : 3 : 11 : 18, of the fifth vein 1.5 : 1, discal cell four times as long as broad, first vein ending beyond the apex of the discal cell, anal vein distinct halfway to the margin.

Female. Similar except for the genitalia and simple tarsi.

Ten specimens : Moscow Mountain, Idaho, June 12, 1910.

(2) **Microphorella chiragra**, nov. sp. — Male. Length 1.6 mm. Black, coated with dark brownish gray pollen, the abdomen subshining. Third joint of the antennæ pubescent beneath, suddenly constricted on its outer third, the basal portion circular, arista one-half longer than the third joint. Seven dorsocentrals present. Fifth, sixth and seventh segments of the abdomen tumid; pygidium very large, flexed to the right, its complicated inner parts large and brownish. Trochanters not tuberculate, femora not ciliate, tibiae simple, the middle pair with an apical spine, front metatarsi swollen, thicker than their tibiae and as long as the second to the fourth tarsal joints which are of decreasing length, the fourth joint more than half as long as the flattened fifth joint, posterior tarsi simple. Wings narrow, nearly hyaline, nearly three times as long as wide, sections of the fourth vein proportioned 0.3 : 0.3 : 1 : 1.5, of the fifth vein 1 : 0.7, anal vein short and very faint.

Female. Same, except for the blunt spinose-tipped abdomen and the simple tarsi.

Nine specimens : Almota and Pullman, Washington, May and June.

Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 253, 260 (1903); Melander, Williston Man. N. Amer. Dipt. p. 225 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302 (1909); Kertész, Cat. Dipt. Vol. 6, p. 101 (1909); Becker, Wien. Ent. Zeit. Vol. 28, p. 25-28 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 570 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 189 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 43, 77 (1910).

Holoclera, Melander, not Schiner, Trans. Amer. Ent. Soc. Vol. 28, p. 333 (1902).

Schistostoma, Becker, Mitteil. Zool. Mus. Berl. Vol. 2, p. 46 (1902); Wien. Ent. Zeit. Vol. 28, p. 27 (1909); Kertész, Cat. Dipt. Vol. 6, p. 101 (1909).

Characters. — Small usually opaque black hunchbacked species, the males with a twisted epipygium and large contiguous eyes. Head rather globular, the occiput flattened, eyes bare, of the female widely separated, of the male contiguous along the front, the facets of the upper two-thirds larger than below; antennæ inserted rather below the middle of the head, three-jointed, the middle joint typically with strong setæ above and below, the third joint compressed conical or more or less abruptly attenuated beyond the base, with a lengthened terminal arista which varies from one-half to three times as long as the third joint; proboscis usually retracted within the oral cavity, sometimes more or less protruding when the fleshy labium can be seen surrounding the chitinized piercing parts, palpi minute, cylindrical; bristles of the occiput not strong. Thorax greatly arched, robust, about as long as the abdomen, more or less bristly, with two or four rows of acrostichals, a row of dorsocentrals, some posthumeral and supraalar, as well as the usual humeral, notopleural, postalar and scutellar bristles, the last mentioned varying from four to eight in number; pleuræ bare. Abdomen stout, cylindrical, clothed with long thin hairs in the male, epipygium twisted to the right, distorted, often very large, sometimes the last ventral segments of the male are spinose; no distinct ovipositor, but the last segments of the female abdomen compressed or tubular and shining. Legs short, often the femora and tibiæ pectinate with bristles, and in the male, variously furnished with bristles which are lacking in the female. Fringe of the calypteres prominent. Wings large, anal angle full, costa encompassing the entire wing, stigma usually distinct, auxiliary vein distinct from the first and terminating in the costa, basal cells minute, discal cell large, complete, third vein simple, anal crossvein recurved, forming a jog in the under side of the anal cell, anal vein completely wanting, no alula but the alular cilia long.

Type species: *M. velutinus*, Meigen (Pl. 7, Fig. 63), by Rondani's designation, 1856. Westwood indicated *Trichina clavipes* as the type, but Macquart did not have this species when he erected the genus *Microphorus*. The genus is restricted to the Northern Hemisphere. The species are not rare in shady woods where they are supposed to prey on smaller insects. Beling has described the earlier stages of *M. pusillus*. The sort of sexual dimorphism exhibited by this genus is curious. Here and there on the body, such as on the middle trochanters and femora and on the under side of the abdomen, the males of some species have developed characteristic blunt spinous bristles. Again in other species the hind tibiæ and metatarsi of the males are swollen, but are normal in the females.

SUBGENUS SCHISTOSTOMA, BECKER

Characters. — Proboscis very short, not protruding, vertical, fleshy, palpi short, cylindrical, furnished with five or six setæ; second joint of the antennæ not setose, only some short setulæ present, third joint conical, longer than its arista; front of female with two fronto-orbitals. Only the posterior two or three dorso-centrals lengthened, one posthumeral, one notopleural, the setulæ weak, two scutellars. Pygidium with several long filamentous appendages, ovipositor short and tubular. Alula somewhat distinct, calypteres large, no basal bristle on the costa.

Type species : *S. eremita*, Becker (Pl. 7, Fig. 62). This genus was proposed by Becker for a whitish pruinose Egyptian fly occurring on the sands of the seashore. At first sight its whitish color, light colored legs and pure white bristles were far from suggesting the black species of *Microphorus*, but as recently a white haired *Microphorus* and a black *Schistostoma* have been found, Becker (1909) concluded that *Schistostoma* is but a subgenus of the older *Microphorus*.

SYNOPSIS OF THE NORTH AMERICAN SPECIES OF MICROPHORUS

1. Middle trochanters of the males with one or two strong spine-like bristles, middle femora ♂ with some long stiff flexor bristles, middle tibiae ♂ more or less excised within before the tip; acrostichals biseriate; fifth ventral ♂ with apical spines. 2.
 Middle trochanters and femora not armed beneath with long stiff bristles, middle tibiae straight; fifth ventral not with projecting spines. 5.
2. Hind tibiae ♂ clavate and strongly pectinate, hind metatarsi ♂ much swollen; size about 3 mm. 3.
 Hind tibiae not clavate and not strongly pectinate, hind metatarsi not swollen; size about 2 mm. 4
3. Fourth and fifth ventrals ♂ each with apical spines; middle femora ♂ with five or six flexor bristles; halteres yellow. *M. ROBUSTUS*, nov. sp. (1).
 Fifth ventral ♂ with apical spines; middle femora ♂ with two flexor bristles and one sub-basal arising from the anterior side, hind metatarsi ♂ pectinate above, halteres black *M. ARMIPES*, nov. sp. (2).
4. Third antennal joint conical, as long as its arista; middle femora ♂ with a group of three strong flexor bristles, inner side of middle tibiae ♂ with a bristly callous at three-fifths the tibial length; female cinereous *M. RAVIDUS*, Coquillett.

(1) *Microphorus robustus*, nov. sp. — Male. Length 3 mm. Black, coated with opaque brown pollen, halteres brownish yellow. Upper facets enlarged; third joint of the antennæ one-half longer than deep, conical with concave sides, no constricted process, arista twice as long as the third joint; mouthparts not projecting. Thoracic bristles rather sparse, acrostichals biseriate, five pairs in number, about nine dorsocentrals, all but the last two short, two posthumeral, two small supra-alar, four scutellars. Hairs of the abdomen moderately long and black, fourth and fifth ventral segments with a double spine-like bristle on each side of the apical margin, pygidium rather small, twisted. Middle trochanters with a stiff double bristle, front femora with fine long cilia below, middle femora with about six spinous flexor bristles, hind femora with short pectination above and below, middle tibiae distorted on the apical half, the inner side broadly excised, hind tibiae clavate and exteriorly pectinate, hind metatarsi globose but not pectinate. Wings dark, stigma distinct, sections of the fourth vein proportioned 1 : 2 : 3, of the fifth vein equal.

Type received from E. T. Cresson, Jr. and deposited in the Philadelphia Academy of Science. Swarthmore, Pennsylvania, June 1, 1909.

(2) *Microphorus armipes*, nov. sp. — Male. Length 2.9 mm. Black, including all the appendages. Upper facets of male enlarged; third joint of the antennæ suddenly constricted beyond the base, the constricted portion as long as the basal portion, arista twice as long as the third joint; mouthparts not projecting. Mesonotum lightly coated with brown, subshining, bristles long, the acrostichals biseriate, about seven pairs in number, eight to ten dorsocentrals, one posthumeral, two supra-alar, four scutellars. Abdomen subshining, its hairs sparse, long and black, fifth ventral with four apical spinous bristles; pygidium twisted, penis furcate. Middle trochanters with a double long stiff bristle front femora pectinate below, hind femora pectinate above and below, middle femora with two long strong flexor bristles, near the middle, the distal one blunt and shorter than the proximal, a shorter subbasal bristle arising from the anterior side, hind tibiae clavate, strongly pectinate along the extensor edge, hind metatarsi swollen and likewise pectinate. Wings darkly infumated, stigma distinct, sections of the fourth vein proportioned 1 : 2 : 3, of the fifth vein equal.

Female. Bristles short, legs not pectinate nor spinose.

Several specimens from Quilcene, Olga and Seattle, Washington, the last mentioned received from Professor Kincaid

- Third antennal joint strongly constricted beyond its base, much shorter than its arista; middle femora ♂ with about six bristles distributed along the under side, middle tibiae not callous; female black *M. SYCOPHANTOR*, Melander.
5. Fourth ventral segment ♂ posteriorly expanded into a bilobate process which bears spinous bristles; facets ♂ all moderately small; middle tibiae ♂ with a subapical spur; acrostichals biseriate *M. ISOMMATUS*, nov. sp. (1).
Ventral segments not thus developed, no ventral spines; upper facets ♂ larger; acrostichals quadriseriate 6.
6. Proboscis projecting forward; posthumeral sparse; third antennal joint conical and longer than its arista; wings hyaline 7.
- Proboscis very short; posthumeral ♂ abundant; third antennal joint suddenly attenuated beyond the base and much shorter than the arista; wings dark *M. ATRATUS*, Coquillett.
7. Thorax ♂ velvety, abdomen ♂ with yellow hairs; hind tibiae and metatarsi ♂ dilated. *M. OBSCURUS*, Coquillett.
- Thorax ♂ with two shining vittae; hairs of the abdomen black; legs not dilated *M. BILINEATUS*, Melander.

Geographical distribution.

SUBGENUS MICROPHORUS, MACQUART

1. *M. albopilosus*, Becker, Deutsche Ent. Zeitschr. 1910, 644 (1910). Corsica.
2. *M. anomalus*, Meigen, Syst. Besch. Vol. 4, p. 9 [1824] (*Platypesa*); Loew, N. and C. Europe
Zeitschr. Ent. Breslau, Vol. 17, p. 43 (1864); Strobl, Mitteil.
Naturw. Ver. Steiermark, Graz, Vol. 29, p. 92 (1892); Lundbeck,
Dipt. Dan. Vol. 3, p. 192, f. 73, 74 (1910); Wahlgren, Ent. Tidskr.
Vol. 31, p. 78 (1910); Frey, Acta Soc. Sc. Fenn, Helsingfors, Vol. 37
(3), p. 59 (1913).
crassipes, Macquart, Dipt. N. France, Vol. 3, p. 140, pl. 4, f. 1 [1827] (*Micro-*
phor); Hist. Nat. Dipt. Vol. 1, p. 346, pl. 8, f. 7 (1834); Meigen, Syst.
Besch. Vol. 7, p. 78 [1838] (*Trichina*); Boitard, Nouv. Man. Vol. 3,
p. 322 (1843); Walker, List Dipt. Brit. Mus. Vol. 3, p. 488 (1849); Ins.
Brit. Dipt. Vol. 1, p. 114 (1851); Schiner, Fauna Dipt. Austr. Vol. 1,
p. 79 (1862).

(1) *Microphorus isommatus*, nov. sp. — Male. Length 2 mm. Entirely black, with a brownish tinge, halteres white. Eyes subcontiguous, touching along the middle of the front, the upper facets scarcely larger than the lower, third joint of the antennae conical, broad at the base, scarcely longer than wide, not produced as an attenuated portion, its sides slightly concave, arista twice as long as the third joint: mouthparts retracted, only the tip normally exposed; ocellar triangle not prominent. Thoracic bristles sparse, acrostichals biseriate, about five pairs in number, about ten small dorso-centrals, two posthumeral, three supra-alars and four scutellar. Hairs of the abdomen short, sparse and black, fourth ventral segment polished, broadly emarginate in the middle and produced backward on each side as a large convex lobe whose inner margin is set with six stiff spine-like bristles; pygidium large and twisted, penis ending in two claws. Legs simple, not spinose or thickened, pubescence black, front tibiae with loose extensor cilia, hind femora with a row of twelve bristles beneath which are not longer than the diameter of the femur, middle tibiae with a short apical spur and middle metatarsi with a corresponding spur at the base. Wings dark, rather broad, stigma distinct, third vein sinuous, strongly diverging from the second at the tip, sections of the fourth vein proportioned 0.5 : 0.5 : 1 : 1.5, of the fifth vein equal.

Female. Similar except for the separated eyes and the different genitalia, last three segments of the abdomen simple, broadly compressed, shining.

Several specimens; London Hill Mine, Bear Lake, British Columbia, altitude 7000 feet, July 21, 1903, collected by J. W. Cockle. Type in the U. S. National Museum.

- pusillus*, Macquart, Dipt. N. France, Vol. 3, p. 140 [1827] (*Microphor*); Hist. Nat. Dipt. Vol. 1, p. 346 (1834); Meigen, Syst. Besch. Vol. 7, p. 78 [1838] (*Trichina*); Zetterstedt, Dipt. Scand. Vol. 1, p. 256 [1842] (*Microphora*); Vol. 8, p. 2999 [1849] (*Microphora*); Walker, Ins. Brit. Dipt. Vol. 1, p. 115 (1851); Zetterstedt, Dipt. Scand. Vol. 12, p. 4600 [1855] (*Microphora*); Beling, Arch. Naturg. Berlin, Vol. 48 (1), p. 212 (1882).
- tarsellus*, Zetterstedt, Dipt. Scand. Vol. 1, p. 257 [1842] (*Microphora*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 50 [1851] (*Microphora*); Zetterstedt, Dipt. Scand. Vol. 13, p. 4982 [1859] (*Microphora*).
3. *M. armipes*, nov. sp. Washington.
 4. *M. atratus*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 412 (1900); Alaska.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 333 [1902] (*Holoclera*);
Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263 (1903).
 5. *M. beckeri*, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 72 C. Europe.
(1909).
 6. *M. bilineatus*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 334, f. 99 Louisiana.
[1902] (*Holoclera*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263
(1903).
 7. *M. dalmatinus*, Strobl, Glasn. Mus. Bosn. Herzeg, Sarajewo, Vol. 14, S. Europe.
p. 468 (1902); Mitth. Bosn. Herzeg, Sarajewo, Vol. 9, p. 527 (1904).
 8. *M. * defunctus*, Handlirsch, Contrib. Can. Palæoz. Ins. Vol. 2, p. 124, Oligocene : British
f. 32, 33 (1910). Columbia.
 9. *M. drapetoides*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 489 (1849); Hudson's Bay.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 332 (1902).
 10. *M. * eocenicus*, Meunier, Ann. Soc. Sc. Nat. Bruxelles (8), Vol. 16, p. 402, Baltic Amber.
pl. 2, f. 7, 8 [1902] (*Hoclocera*); Handlirsch, Foss. Ins. p. 1016 [1906]
(*Hoclocera*); Meunier, Ann. Sc. Nat. [Zool.] (9), Vol. 7, p. 85, note,
126 [1908] (*Holoclera*).
 11. *M. hiemalis*, White, Proc. Roy. Soc. Tasmania, 1916, p. 240, f. 47 (1917) Tasmania.
 12. *M. isommatus*, nov. sp. British Columbia.
 13. *M. obscurus*, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 268 (1903). United States.
 14. *M. pilimanus*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 26 (1899); Verh. Zool. Spain.
Bot. Ges. Wien, Vol. 59, p. 177 (1909).
 15. *M. * ? putidus*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 94, 126, pl. 7, Baltic Amber.
f. 10, 11 (1908).
 16. *M. ravidus*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 409 (1895); W. United States.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 333 [1902] (*Holoclera*);
Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263 (1903).
 17. *M. robustus*, nov. sp. Pennsylvania.
 18. *M. rostellatus*, Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 42 (1864); Strobl, S. Europe.
Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 177 (1909).
 19. *M. scapuliferus*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 129 (1889); Chile.
Bezzi, Ann. Mus. Hungar, Vol. 3, p. 458 (1905).
 20. *M. semifulvus*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 129 (1889); Chile.
Bezzi, Ann. Mus. Hungar, Vol. 3, p. 458 (1905).
 21. *M. sycophantor*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 334 [1902] W. United States.
(*Holoclera*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263 [1903]
(*Anthalia*).
 22. *M. velutinus*, Macquart, Dipt. N. France, Vol. 3, p. 140 [1827] (*Microphor*); Europe.
Hist. Nat. Dipt. Vol. 1, p. 346 (1834); Meigen, Syst. Besch.
Vol. 7, p. 78 [1838] (*Trichina*); Walker, Ins. Brit. Dipt. Vol. 1, p. 114
(1851); Zetterstedt, Dipt. Scand. Vol. 12, p. 4599 [1855] (*Microphora*);
Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 144 [1861] (*Microphora*);
Schiner, Fauna Dipt. Austr. Vol. 1, p. 79 (1862); Loew, Zeitschr.
Ent. Breslau, Vol. 17, p. 45 (1864); Neuhaus, Dipt. March. p. 69

[1886] (*Trichina*); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 133 (1887); Mik, Wien. Ent. Zeit. Vol. 6, p. 100 (1887); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 92 (1892); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 144 (1899); Strobl, Wien. Ent. Zeit. Vol. 18, p. 26 (1899); Lundbeck, Dipt. Dan. Vol. 3, p. 191 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 78, f. 9 (1910); Frey, Acta Soc. Sc. Fenn, Helsingfors, Vol. 37 (3), p. 59 (1913); Boitard, Man. Ent. Vol. 3, p. 322 (1843). — **Pl. 7, Fig. 63.**

fuscipes, Zetterstedt (not 1838, which is *Trichina elongata*), Dipt. Scand. Vol. 11, p. 4268 [1852] (*Microphora*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 71 (1909).

? *holosericeus*, Meigen (not 1838, which is *Rhamphomyia gibba*). Classif. Beschr. Eur. Dipt. Vol. 1, p. 231 [1804] (*Empis*); Syst. Beschr. Vol. 3, p. 58 [1822] (*Rhamphomyia*); Vol. 7, p. 89 (1838) (*Rhamphomyia*); Loew, Bemerk. Posen. Gegend Art Zweifl. Gatt. 1840, p. 21, f. 22; Isis, Vol. 7, p. 549 f. 22 [1840] (*Rhamphomyia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 425 [1842] (*Rhamphomyia*); Walker, List. Dipt. Brit. Mus. Vol. 3, p. 105 [1849] (*Rhamphomyia*); Scholz, Zts. Ent. Breslau, Vol. 5 (19), p. 50 (*Microphora*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 100 [1862] (*Rhamphomyia*).

? *rufipes*, Meigen, Syst. Beschr. Vol. 7, p. 78 [1838] (*Trichina*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 79 (1862).

vicinus, Mik, Wien. Ent. Zeit. Vol. 6, p. 99 (1887).

SUBGENUS SCHISTOSTOMA, BECKER

1. *Sch. eremita*, Becker, Mitteil. Zool. Mus. Berl. Vol. 2, p. 47, pl. 4, f. 5 Egypt. (1902). — **Pl. 7, Fig. 62).**
2. *Sch. nigrescens*, Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 121 (1907); Wien. Ent. Zeit. Vol. 28, p. 25 (1909). Algeria.
3. *Sch. truncatus*, Loew, Zeit. Ent. Breslau, Vol. 14, p. 48 [1863] (*Microphorus*); C. Europe. Strobl, Jahrb. Naturk. Landesmus. Kärnten, Klagenfurt, Vol. 47, p. 201 [1901] (*Microphorus*); Becker, Wien. Ent. Zeit. Vol. 28, p. 25 (1909); Strobl, Verh. Zool. bot. Ges. Wien, Vol. 59, p. 177 [1909] (*Microphorus*).
4. *Sch. yakimensis*, nov. sp. (1) Washington.

4. GENUS HORMOPEZA, ZETTERSTEDT

Hormopeza, Zetterstedt, Fauna Ins. Lappon. p. 540 (1838); Dipt. Scand. Vol. 1, p. 257 (1842); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 562 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 111 (1862); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 118 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389 (1895); Williston, Man. N. Amer. Dipt. p. 75 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 273 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 251, 263 (1903); Melander, Williston, Man. N. Amer. Dipt. p. 224 (1908); Kertész, Cat. Dipt. Vol. 6, p. 83

(1) **Microphorus (Schistostoma) yakimensis**, nov. sp. — Male. — Length 2.3 mm. Body entirely black but thickly overlaid with gray pollen, the conspicuous long hairs and bristles white. Third antennal joint one and one-half times as long as broad and equal to the arista in length; proboscis black, extending obliquely forward but not reaching beyond the strongly vaulted oral opening; palpi with white hairs; occiput densely gray pollinose, the orbital bristles long and dense. Thorax faintly bilineate when viewed from in front, the acrostichals forming a double row, the dorsocentrals numerous, scutellum bisetose. Abdomen gray pollinose except for the seventh sternite and the large reflexed end of the epipygium; the penis and black ventral processes long, as in Becker's figure of *S. eremita*. Legs entirely black though overlaid with gray dust, the bristles white, hind femora and tibiae ciliate. Calypteres white, densely fringed; halteres white. Wings hyaline, the veins brown, stigma very faint, no costal bristle.

One specimen taken in April, 1915, at Yakima, Washington.

(1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 553 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 44, 65 (1910).

Characters. — Blackish species measuring three or four millimeters in length, not closely related to any of the other genera. Head almost globular, the occiput rather flattened, eyes bare, of the male broadly contiguous along the front, the ocellar triangle elevated, the upper facets large, of the female widely separated, the front quadrate and bearing six minute fronto-orbitals, face broadly receding but wide, especially in the male; antennæ located below the middle of the head, apparently two-jointed since the basal joints are completely fused into a small globular nearly bare segment, the last joint compressed and broadly orbicular, ending in a short two-jointed style, whose basal joint is quadrate and whose outer joint consists of a short stubby bristle; proboscis short and thick, smaller and retracted in the male, protruding obliquely forward in the female, palpi short, horizontal and gradually thickened; occiput not bristly above but seriatly hairy, one pair of ocellar bristles. Thorax markedly bristly, about four humerals, three posthumeral, five notopleurals and several scutellars, the dorsocentrals numerous, acrostichals biseriate, quite a number of lateral setulæ beyond the dorsocentral rows; metapleuræ bare, pectus with some bristles at the base of the coxæ. Abdomen of the female subequal to the thorax in length, of the male one-half longer, eighth segment of the female broadly conical, almost wedge-shaped and strong; pygidium robust, globose, the dorsal valves large and erect, the lateral valves rather hemispherical and with two blunt posterior prongs, penis hidden. Legs strongly bristly, anterior femora of the female with two flexor rows of bristles, tibiæ of both sexes with several sets of bristles, tarsal joints more or less setose, pulvilli large. Wings not colored, rather pointed, anal angle strongly rectangular, costa stopping at the tip of the wing, auxiliary vein distinct and extending into the costa, a thickened stigma between the ends of the auxiliary and first veins, third vein with a long fork, discal cell located before the middle of the wing, the basal and discal cells not large, the sections of the fifth vein nearly 1 : 2, anal crossvein reflexed less abruptly than usual, angulate with the anal vein, the latter confluent with the under side of the anal cell, second basal and anal cells of equal width, a small alula present; calypteres with a strong fringe.

Type species: *H. obliterated*, the only species occurring in Europe. On many occasions I have taken specimens of *Hormopeza* on the window-panes in houses. The affinities of this genus are not clear. In 1908, when stressing the importance of the form of the anal cell, I located *Hormopeza* in the *Ocydromiinae*, in which group it would be distinct in having the third vein furcate. It seems more likely that the genus is a specialized but ancient offshoot of the *Oreogeton* branch of the Empidinae.

KEY TO THE SPECIES OF HORMOPEZA

Eyes of male separated; joints of anterior tarsi rounded at ends;

basal dorsal process of pygidium rather wide and erect *H. senator*, nov. sp. (1).

Eyes of male broadly contiguous 2.

(1) *Hormopeza senator*, nov. sp. — Male. Length 3 mm. Black, head and thorax entirely covered with cinereous pollen; abdomen shining; first and most of second segment lightly cinereous pollinose, extreme base of segments three and four similarly pollinose. Eyes narrowly separated on the front, the facets uniform, antennæ brown, the third joint short, ovate; proboscis short, black, together with the yellow palpi reaching forward; occipital hairs pale yellow. Thoracic hairs yellow; hairs of abdomen pale; pygidium lightly pollinose, its ventral setæ yellow and apical hairs brown, dorsal process wider than usual and erect, side valves terminating in a very large, oblong process whose lower apical angle is rounded, above at the base of this process the side valve is continued inward as a short, robust tooth. Legs brown, the coxæ testaceous, joints of anterior tarsi rounded, oblong; pulvilli whitish, one-third as long as last tarsal joint; bristles of hind tibiæ blackish; hind femora with fringe of short setæ above. Wings hyaline, veins thin and pale, apex of costal cell scarcely differentiated.

Holotype, Washington D. C., 17 August, 1913.

2. Third antennal joint pear-shaped, nearly twice as long as wide; joints of anterior tarsi rounded-oblong; dorsal process of pygidium vertically erect, side valves flattened above and with a rectangularly inbent tip *H. OBLITERATA*, Zetterstedt.
 Third antennal joint short ovate; tarsal joints oblong; dorsal process of pygidium bent posteriorly 3.
3. Abdomen uniformly though lightly cinereous pollinose; dorsocentrals blackish; front of female narrowest just above antennae; pulvilli one-half (male) or one-fourth (female) the length of the last tarsal joint 4.
 Abdomen polished, at most with faint basal bands of pollen on the segments; dorsocentrals yellow; front of female narrowest midway to the ocelli; pulvilli two-thirds the length of the last tarsal joint. 5.
4. Pygidial valves terminated below by an elongate narrow arm and above by a strong quadrate process *H. COPULIFERA*, nov. sp. (1).
 Pygidial valves lacking the lower narrow arms, but with a long slender erect process arising from base of the L-shaped terminal piece *H. VIRGATOR*, nov. sp. (2).
5. Stigma and veins fuscous; halteres blackish; legs black except apex of coxæ and knees *H. NIGRICANS*, Loew.
 No stigma, veins thin and pale; halteres and legs yellow to brown 6.
6. Robust, 4.5 mm.; abdomen shining black; third antennal joint broadly oval. *H. BULLATA*, Melander.
 Smaller, 3-4 mm.; abdomen often brownish-black and with bands of pollen across base of segments; third antennal joint subrotund;

(1) *Hormopeza copulifera*, nov. sp. — Male. Length 4 to 5 mm. Black, eyes contiguous, third antennal joint round, occipital hairs white. Thorax completely coated with cinereous pollen, the prominent setæ of middle of notum blackish, lateral and posterior bristles pale. Abdomen lightly covered with gray pollen, its hairs pale; pygidium mostly shining, lightly pollinose below, with strong convex lateral valves terminating below in a narrow, incurved, parallel-sided brown arm which bears a few long and short setæ, and above by a heavy quadrate process which is somewhat expanded at the tip, within the last mentioned process the valve bears a short but strong conical projection, hairs and setæ of pygidium prominent and blackish. Legs simple, hairs pale in the femoral crests, elsewhere mostly dark, all tibiae bearing dark bristles, pulvilli dusky, about half the length of the last tarsal joint. Knob of halteres blackish, wings cinereous, almost hyaline, veins thin but dark, distal portion of costal cell blackish; sections of fifth vein 2 : 3.

Female. Eyes widely separated, front narrowest above antennæ, ovipositor retracted in the tubular eighth segment.

Types taken from a window in a sawmill at Cœur d'Alene, Idaho, 24 August, 1916. Paratypes from Douglas, Alaska (E. L. Jenne), Friday Harbor, Washington (J. M. Aldrich), Banff, Alberta (C. B. D. Garrett); and Port Angeles, Olga, Friday Harbor, Spokane, Washington; and Potlatch and Moscow, Idaho (Melander). Most of these specimens were taken on windows.

(2) *Hormopeza virgator*, nov. sp. — Male. Length 3 mm. Black, eyes contiguous, antennæ black, third joint round; occipital hairs pale; thorax entirely covered with cinereous dust, hairs of middle of notum blackish, lateral and posterior bristles pale; abdomen lightly coated with pollen, subshining, its long, fine hairs white; pygidial valves polished, terminating in a broadly L-shaped inflexed flap from the base of which arises a slender, erect, long prong, a few long dark setæ on lateral valves. Legs simple, hairs yellow, hind femora ciliate above, bristles of hind tibiae black, pulvilli gray less than one-half as long as last tarsal joint. Halteres blackish; wings narrow, nearly hyaline, veins thin and brown, distal portion of costal cell brownish-gray, sections of fifth vein proportioned 5 : 6.

Female. Eyes widely separated, the sides of the front diverging from the antennæ. Last abdominal segment retracted.

Types, Pullman, Washington, 11 September, 1908, taken from a window. Twenty paratypes from Spokane, Washington, and from Potlatch, Chatcolet, and Moscow, Idaho, the last collected by J. M. Aldrich. Most of the paratypes were taken from window-panes, August to October.

pygidial valves terminated by large quadrate infolding flaps, bearing long yellow setæ behind which crisscross beneath the pygidium. *H. brevicornis*, Loew.

Geographical distribution.

1. *H. brevicornis*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 83: Cent. 5, No. 65 (1864); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 273, f. 87 (1902). — **Pl. 8, Fig. 76.** W. North America.
2. *H. bullata*, Melander, ibidem, Vol. 28, p. 274, f. 88 (1902). Wyoming.
3. *H. copulifera*, nov. sp. W. North America.
4. *H. nigricans*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 83: Cent. 5, No. 66 (1864); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 275 (1902). W. North America.
5. *H. oblitterata*, Zetterstedt, Lapp. p. 540 (1838); Dipt. Sc. Vol. 1, p. 257 (1842), Vol. 8, p. 3000 (1849); Bonsdorff, Finl. tväv. Ins. Vol. 1, p. 145 (1861); Schiner, Fauna Dipt. Austr. Vol. 1, p. 111 (1862); Wahlgren, Ent. Tidskr. Vol. 31, p. 65 (1910); Frey, Acta Fenn. Vol. 37 (3), p. 45, pl. 1, f. 5 (1913); Collin, Ent. Mo. Mag. Vol. 54, p. 278 (1918). N. Europe.
6. *H. senator*, nov. sp. E. United States.
7. *H. virgator*, nov. sp. W. United States.

5. GENUS TIMALPHES, NOV. GEN.

Characters. — Very close to *Oreogelton*, but the metapleuræ are bare and none of the veins is setulose. Strongly setose, rather large species. Eyes of the male broadly contiguous on the front, facets uniform and bare, face wide but short, receding into the oral cavity almost immediately below the antennæ; antennæ about as long as the head, distinctly three-jointed, the basal joints setose, the first joint slightly longer than the second, the third joint conical, a little more than twice as long as wide, its sides somewhat concave, arista terminal, longer than the third joint, thickened, geniculate at its articulation, the basal segment very minute and the apical seta microscopic; proboscis horizontally porrect, thick, palpi likewise porrect, thick and cylindrical and strongly setose; occiput with abundant hairs which become biseriate above as the vertical bristles, ocellar bristles four in number and small. Thorax robust, no pubescence, one humeral, one posthumeral, three notopleurals, several supraalars, four scutellars, about ten dorsocentrals, the foremost placed outside of the row, acrostichals strong and biseriate; pleuræ entirely bare. Abdomen strongly cylindrical, somewhat bent downward, abundantly hairy, the basal segments marked with basal transverse, lateral longitudinal and subdiscal oblique series of pittings; pygidium small, the lateral valves with a forcipate pair of posterior prongs, dorsal valves small and hairy, penis hidden. Legs simple, hairy and bristly, femora and hind tibiæ more or less distinctly ciliate with bristles, anterior tibiæ with several sets of extensor and apical bristles, pulvilli large. Wings with nearly parallel sides, anal lobe rectangular, a distinct axillar angle, costa continuing around the entire wing, auxiliary vein complete, ending in the costa at the middle of the wing, third vein with a long fork, sections of the fifth vein subequal, basal cells equal and shorter than the blunt discal cell, anal crossvein abruptly reflexed, one-third as long as the anal cell, anal vein not continuous with the anal cell, extending almost to the margin; alula very weak, calypteres lobose, margined and with a prominent fringe.

Type species: *T. fumosa*, Hutton (Pl. 6, Fig. 53), a species described as a *Clinocera*. It seems quite likely that Meunier's fossil *Brachystoma gracilis* from the Lower Oligocene belongs to this genus.

However, the illustration of the head drawn by Mrs. Meunier suggests a dichoptic insect. Loew's species of *Gloma* with slender antennæ, likewise from the Baltic amber, possibly belong here.

Geographical distribution.

1. *T. * ? acuticornis*, Loew, Bernsteinfauna, p. 41 [1850] (*Gloma*); Giebel, Ins. Baltic Amber. Vorwelt, p. 208 [1856] (*Gloma*).
2. *T. fumosa*, Hutton, Trans. New. Zeal. Inst. Vol. 33, p. 31 [1901] (*Clinocera*); New Zealand. Bezzi, Ann. Mus. Hungar. Vol. 2, p. 321, note [1904] (*Heleodromia*); Kertész, Cat. Dipt. Vol. 6, p. 123 [1909] (*Heleodromia*); Engel, Deutsche, Ent. Zeitschr. 1918, p. 47 [1918] (*Hydrodromia*). — **Pl. 6, Fig. 53.**
3. *T. * ? gracilis*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 92, 113, pl. 8, Baltic Amber. f. 10, Vol. 9, p. 2-4 [1908] (*Brachystoma*).
4. *T. * ? palpata*, Loew, Bernsteinfauna, p. 41 [1850] (*Gloma*); Giebel, Ins. Baltic Amber. Voorwelt, p. 208 [1856] (*Gloma*).

6. GENUS OREOGETON, SCHINER

Oreogeton, Schiner, Wien. Ent. Monatschr. Vol. 4, p. 53 (1860); Fauna Dipt. Austr. Vol. 1, p. 112 (1862); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 116 (1889); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 275 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 254, 262 (1903); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 451 (1905); Melander, Williston, Man. N. Amer. Dipt. p. 225 (1908); Kertész, Cat. Dipt. Vol. 6, p. 80 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 580 (1910).

Characters. — Rather large black or yellow more or less pollinose species somewhat resembling *Leptis* in appearance. Head small, eyes of the male contiguous on the front but widely separated below, facets nearly uniform, bare; antennæ inserted below the middle of the head, the face small and quadrate, receding below as the pollinose broad epistome; basal joints of the antennæ short and setose, third joint conical, terminated by a thick arista longer than the third joint and tipped with a short hair; proboscis very short and fleshy, directed forward, palpi long, clavate, hairy, porrect; occipital hairs abundant, not differentiated into bristles above; ocellar triangle of the male a little elevated. Thorax bristly, dorso-centrals numerous, several humerals, posthumerals, notopleurals, supra-alars and scutellars, the acrostichals biseriate; pleuræ pollinose, metapleuræ setose. Abdomen hairy and bristly, twice as long as the thorax, rather slender and cylindrical, pygidium not large, bilateral, lateral valves oblong, pointed at the upper apex and bearing a dorsal tooth, dorsal valves small and cerciform; abdomen of the female somewhat depressed, tapering at the apex. Legs slender, setose, in the male the middle pair sometimes ornate with bunches of bristles, the tibiæ bearing sets of apical as well as intermediate bristles, pulvilli large. Wings large, veins strong, the first, second and sometimes the third veins bearing setulæ on the upper surface and the second setulose on the lower side, the setulæ of the first vein dense, costa continuing around the entire wing but weakened on the hind margin, auxiliary vein distinct, ending in the costa, third vein forked, the upper branch short and oblique, basal cells shorter than the apically blunt discal cell, anal crossvein abruptly reflexed, continuous with the underside of the anal cell, anal vein obsolete, anal angle of the wing strongly rectangular, alula distinct; calypteres large, margined and densely fringed.

Type species: *O. basalis*, Loew (**Pl. 5, Fig. 50**). There is a tendency in the genus for the base of the abdomen to be pellucid and for the females to be yellowish in color. In neuration and body-color

the species are quite constant. The following table shows the variations in arrangement of the special bristles of the males. Females are more difficult to determine specifically than the males. The male of *rufus* is not known and the species is therefore omitted from the table. Both sexes of *obscurus* are dark, and the species is thus distinct from *rufus*.

KEY TO THE SPECIES OF OREOGETON, BASED ON MALES

1. Front tarsi with last two joints flat, black and densely fringed with flat setæ 2.
 Front tarsi without expanded and pennate tip 3.
2. Front tibiæ with dense cluster of black setæ around tip *O. SCOPIFER*, Coquillett.
 Front tibiæ not setose around tip *O. CYMBALLISTA*, nov. sp. (1).
3. Some of the flexor setæ near middle of middle tibiæ projecting far beyond the others 4.
 Middle tibiæ nearly uniformly setose *O. BASALIS*, Loew.
4. Third vein setulose above; central seta of middle femora stronger than the others; arista arising from above apex of antenna. *O. CAPNOPTERUS*, nov. sp. (2).
 Third vein bare, rarely with one or two setulae; more than one long seta under middle femora; arista terminal 5.
5. Three or four outstanding setæ under middle femora; setæ of middle coxæ pointed 6.
 About eight outstanding setæ under middle femora; apical setæ of middle coxæ strong and blunt *O. MITREPHORUS*, nov. sp. (3).

(1) *Oreogeton cymballista*, nov. sp. — Male. Length 7 mm. Head and thorax black, base of abdomen pellucid yellow, remainder of abdomen piceous, legs, halteres and base of wings yellow. Last two joints of front tarsi flat, forming a black disk heavily fringed with black scale-like setæ, last two joints of posterior tarsi likewise contrastingly black but not discoid, middle femora with five very long setæ near middle beneath and with a comb of seven shorter setæ toward knee along postero-flexor face, middle tibiæ bent, swollen at three-fifths their length where they bear a dense brush of flexor setulae, also seriatly setulose toward knee beneath, along extensor side with five scattered long setæ. Wings with reddish brown tinge.

Holotype, Nelson, British Columbia, 17 July, 1910 (Melander).

(2) *Oreogeton capnopterus*, nov. sp. — Male. Length 5.5 mm. Head black, thorax piceous, base of abdomen pellucid yellow, remainder of abdomen piceous, coxæ and anterior legs yellow, hind legs brown, halteres with yellow stalk and piceous knob, calypteres yellow. Last two joints of tarsi small, blackish but not contrasting with remainder of legs; central flexor seta of middle femora projecting beyond the others, the next one distal to it nearly as long, followed by six shorter not crowded setæ toward the knee; middle tibiæ straight, finely and nearly uniformly setulose and with an extensor seta at three-fifths the length and a small pair near knee. Wings with blackish smoky tinge, third vein setulose above. The arista is attached just above the apex of the antennæ.

Female. Occiput, front, third antennal joint and last two tarsal joints black, otherwise the insect is yellow, becoming brownish on posterior part of abdomen. Femora without specialized setæ. Wings less infumated. Arista arising from tip of antennæ.

Four males, one female, south side of Mt. Rainier, Washington, August, 3500-5500 feet altitude (Melander); 1 male Banff, Alberta, 12 July, 1922 (Garrett), in Canadian National Museum.

(3) *Oreogeton mitrephorus*, nov. sp. (Pl. 6, Fig. 51.) — Male. Length 5.5 mm. Head and thorax black, the sutures rufous, second and third segments of abdomen pellucid yellow, remainder piceous, legs, halteres, and base of wing yellowish. Tarsi apically blackened, not expanded or pennate; middle coxæ with five long blunt apical setæ; middle femora with about eight long flexor setæ extending from before the middle almost to knee; middle tibiæ almost straight, very slightly swollen at two-thirds the length where there are a few erect flexor setulae; one extensor seta near knee, two near middle and two near apex of middle tibiæ; apical setæ of hind coxæ small, hind femora more or less ciliate above and below. Wings with yellowish tinge, third vein not setulose.

Female. Somewhat darker than male, only the second abdominal segment yellowish, coxæ piceous, femora more or less brown, specialized leg bristles absent, third vein setulose.

Five males, thirty-six females. Moscow Mountain and Lookout Mountain, Idaho, June-August (Melander).

6. Hind coxæ with long setæ reaching nearly to end of trochanters;
females yellow *O. HETEROGAMUS*, nov. sp. (1).
Setæ of hind coxæ much shorter than trochanters; females blackish. *O. OBSCURUS*, Loew.

Geographical distribution.

1. *O. basalis*, Loew, Neue Beitr. Dipt. Pt. 4, p. 36 [1856] (*Gloma*); Schiner, C. Europe.
Fauna Dipt. Austr. Vol. 1, p. 112 (1862); Becker, Berl. Ent.
Zeitschr. Vol. 31, p. 133 (1887); Strobl, Mitteil. Naturw. Ver.
Steiermark, Graz, Vol. 29, p. 87 (1893). — Pl. 5, Fig. 50.
2. *O. capnopterus*, nov. sp. W. North America.
3. *O. cymballista*, nov. sp. British Columbia.
4. *O. heterogamus*, nov. sp. Oregon.
5. *O. mitrephorus*, nov. sp. (Pl. 6, Fig. 51). Idaho.
6. *O. obscurus*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 84 : Cent. Vol. 5, p. 63 E. United States; Alaska.
[1864] (*Gloma*); Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 412 [1900]
(*Gloma*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 276, f. 93
[1902] (*Gloma*); Coquillett, Harriman Exped. Vol. 9 (2), p. 26 [1904]
(*Gloma*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 451 (1905).
7. *O. rufus*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 84 : Cent. Vol. 5, p. 67 E. United States.
[1864] (*Gloma*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 275
[1902] (*Gloma*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 451 (1905).
8. *O. scopifer*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 412 [1900] (*Gloma*); Alaska.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 276 [1902] (*Gloma*);
Bezzi, Ann. Mus. Hungar. Vol. 3, p. 451 (1905); Coquillett, Har-
riman Exped. Vol. 9 (2), p. 26 [1904] (*Gloma*).

7. GENUS APALOCNEMIS, PHILIPPI

Apalocnemis, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 752 (1865); Bezzi, Ann. Mus. Hungar., Vol. 3, p. 424, 451 (1905); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 117 (1889); Melander, Williston, Man. N. Amer. Dipt. p. 226 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302, 383 (1909); Kertész, Cat. Dipt. Vol. 6, p. 111 (1909).

Characters. — Small reddish or blackish species measuring three to five millimeters. Head globose, occiput hairy, eyes of the male contiguous on the front; antennæ short, basal joints brief and nearly bare, third joint rotund and short, with a lengthened terminal arista which is obviously longer than the antenna and has a distinct basal segment and an apical seta; proboscis very short, horizontal but not protruding beyond the oral margin, palpi large and briefly hairy. Thorax strong, bristly, a cluster of humerals, several notopleural, scutellar and supra-alar bristles, acrostichals short or long, dorsocentral series complete, the posterior bristles long; pleuræ bare. Abdomen rather cylindrical, pygidium small, bearing four small dorsal appendages. Legs slender, simple, short-hairy, only the male

(1) **Oreogoton heterogamus**, nov. sp. — Male. Length 5.5 mm. Head and thorax black, second and third abdominal segments pellucid yellowish. Last two tarsal joints black, of the anterior legs slightly expanded but not pennate; middle femora with four long flexor setæ near middle, then a short interrupted space followed by four seriate setæ toward knee; middle tibiæ bent at middle and with a few erect flexor setulæ at two-thirds the length, exteriorly with two setæ; apical setæ of hind coxæ long, curved, reaching nearly to end of trochanters; hind femora ciliate above and below with fine setæ. Wings with light yellowish tinge, third vein bare. The thoracic bristles are long.

Female. Occiput, front, third antennal joint and last two tarsal joints black, remainder testaceous yellow, abdomen light brown on apical one-half, the ovipositor yellowish. Specialized leg bristles absent. Third vein setulose.

Two males, three females. Near the mouth of Eagle Creek, Cascade Mountains, Oregon. July 1, 1917 (Melander).

sometimes with femoral bristles. Anal angle well developed, costa encompassing the entire wing, basal bristle present, stigma present or absent, third vein acutely forked, the anterior branch not short, discal cell rather small, anal vein obsolete or thin, not attaining the margin.

Type species: *A. obscura*, Philippi (Pl. 6, Fig. 56), the original species. The genus is related to *Gloma* but differs in the structure of the antennæ. It appears to be restricted to the West coast of South America.

Geographical distribution.

1. *A. breviventris*, Philippi, Verh. Zool.-bot. Wien, Vol. 15, p. 762 [1865] Chile.
(? *Hilara*); Bezzi, Ann. Mus. Hungar, Vol. 3, p. 444 (1905).
2. *A. cingulata*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 383, f. 9 Peru.
(1909).
3. *A. obscura*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 753, pl. 29, Chile.
f. 55 (1865); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 383
(1909). — Pl. 6, Fig. 56.
4. *A. variegata*, Bezzi, Ann. Mus. Hungar, Vol. 3, p. 450, f. 2 (1905); Nova Peru.
Acta Akad. Naturf. Halle, Vol. 91, p. 383 (1909).

8. GENUS GLOMA, MEIGEN

Gloma, Meigen, Syst. Besch. Vol. 3, p. 14 (1822); Macquart, Hist. Nat. Dipt. Vol. 1, p. 345 (1834); Westwood, Gen. Syn. p. 132 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 439 (1842); Boitard, Man. Ent. Vol. 3, p. 321 (1843); Rondani, Dipt. Ital. Vol. 1, p. 149 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 562 (1857); Lioy, Atti Inst. Sc. Veneto, Venezia, 1864, p. 602 (1864); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 131 (1887); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 120 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389 (1895); Williston, Man. N. Amer. Dipt. p. 75 (1896); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 250, 263 (1903); Bezzi, Ann. Mus. Hungar, Vol. 3, p. 451 (1904); Kertész, Cat. Dipt. Vol. 6, p. 111 (1909); Wahlgren, Ent. Tidskr. Vol. 31, p. 44, 85 (1910).

Characters. — Opaque blackish species of about four millimeters length. Eyes bare, of the male contiguous on the front, the upper facets enlarged, of the female widely separated, ocellar triangle of the male prominent, located on the vertex, ocellar bristles long, no fronto-orbitals, face very short and broad, receding into the epistome, the mouth-opening strongly arched, occiput at least of the male with abundant hairs; antennæ shorter than the head, apparently two-jointed due to the close growth of the last two joints, the first joint small, the second cyathiform, with a crown of long setæ, the third joint reniform, bent down at the end and bearing a basal dorsal slender two-jointed arista, which is nearly three times as long as the antenna and is geniculate at the end of its first segment; proboscis short, fleshy, thick, horizontal, scarcely protruding from the oral opening, palpi short, cylindrical and with short hairs. Thorax not convex, devoid of pubescence, bristles long, one humeral, two posthumeral, seven or more dorsocentrals, three notopleurals, four or six scutellars, the acrostichals long and arranged as an irregularly biseriate median row; pleuræ bare. Abdomen twice as long as the thorax, hairy, especially in the male, pygidium small, directed backward, complex with small processes and provided with two short basal prongs and two trumpet-shaped posterior processes; abdomen of the female with a broad blunt termination. Legs slender, simple, in the male more elongate, more hairy, the hind femora ciliate and the hind tibiæ and metatarsi lengthened and slightly swollen, in the female certain of the extensor hairs of the tibiæ almost bristle-like. Wings very broad, the anal angle prominent,

costa stopping at the third vein, auxiliary vein distinct, straight, vanishing before entering the costa, third vein forked, discal cell of moderate size, located a little before the middle part of the wing, anal crossvein abruptly recurved and continuous with the underside of the anal cell, anal vein obsolete, alula scarcely noticeable and with a close fringe; calypteres large, strongly margined.

Type species: *G. fuscipennis*, Meigen (Pl. 6, Fig. 52; Pl. 8, Fig. 74). The genus is distinct in the Empididæ in having a truly dorsal arista. Most of the species described as *Gloma* do not belong to this genus. Individuals of *Gloma* are rarely found. They live in subalpine forests and occur in Europe and North America.

Geographical distribution.

1. *G. fuscipennis*, Meigen, Syst. Besch. Vol. 3, p. 14, pl. 22, f. 11 (1822); Europe.
Macquart, Hist. Nat. Dipt. Vol. 1, p. 345, pl. 8, f. 6 (1834); Blanchard, Hist. Nat. Ins. Vol. 3, p. 582 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 439 (1842); Boitard, Man. Ent. Vol. 3, p. 321 (1843); Schiner, Fauna Dipt. Austr. Vol. 1, p. 112 (1862); Verrall, Ent. Mag. London, Vol. 19, p. 225 (1883); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 87 (1893); Wahlgren, Ent. Tidskr. Vol. 31, p. 85 (1910). — **Pl. 6, Fig. 52; Pl. 8, Fig. 74.**
2. *G. halterata*, Becker, Mission Arc Méridien Amér. Sud, Vol. 10, p. 168 (1919). Ecuador.
3. *G. *? hirta*, Loew, Bernsteinfauna, p. 41 (1850); Giebel, Ins. Vorwelt, p. 208 (1856). Baltic Amber.
4. *G. luctuosa*, nov. sp. (1). — **Pl. 8, Fig. 73.** W. North America.
5. *G. ossicula*, Becker, Berl. Ent. Zeitschr. Vol. 31, p. 132, fig. (1887). Alps.

9. GENUS ITEAPHILA, ZETTERSTEDT

Iteaphila, Zetterstedt, Fauna Ins. Lappon, p. 540 (1838); Dipt. Scand. Vol. 1, p. 258 (1842); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 559 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 110 (1862); Loew, Besch. Eur. Dipt. Vol. 2, p. 250 (1871); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 117 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389 (1895); Williston, Man. N. Amer. Dipt. p. 74 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 331 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 251, 263 (1903); Melander, Williston, Man. N. Amer. Dipt. p. 226 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302 (1909); Kertész, Cat. Dipt. Vol. 6, p. 80 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 556 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 44, 64 (1910).

(1) ***Gloma luctuosa***, nov. sp. (**Pl. 8, Fig. 73**). — Male. Length 3-4 mm. Closely related to *G. fuscipennis*, Meigen, but entirely black and with different proportions to the parts of the pygidium. The basal dorsal process is relatively robust, more setose and its distal fork shorter than in the European species. The main end-valve is broad, stout and roughly triangular, the posterior valve is heavily setose and with crenulate posterior margin. In *fuscipennis* the main valve is narrow, inverted bootshaped and the posterior valve has only two apical and about two basal setæ. A pair of anteriorly directed delicate sinuous processes with deflected tip arise from the middle of the pygidium between the dorsal and main valves, and these are straight in *fuscipennis*.

Four males and four females, taken by the author in the heavy forest on the Fairfax Trail just Northwest of Indian Henry's Hunting Ground on Mount Rainier, Washington, August 9, 1922.

Another mountain species of *Gloma* has been collected on Mount Constitution and along Hoods Canal, Washington, on Mount Hood, Oregon, and on Lookout Mountain near Priest Lake, Idaho. As all the specimens are female the species is not described here. This form has the legs, halteres, abdomen and base of wings largely yellowish, as in *fuscipennis*, but it is only two-thirds as large as that species.

Sphicosa, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 751 (1865); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 116 [1889] (*Sphicosa*); Kertész, Cat. Dipt. Vol. 6, p. 81 (1909).

Steleocheta, Becker, Berl. Ent. Zeitschr. Vol. 31, p. 129 (1887); Wien. Ent. Zeit. Vol. 9, p. 32 (1890), Vol. 13, p. 156-159 (1894); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 257 (1903); Kertész, Cat. Dipt. Vol. 6, p. 80 [1909] (*Steleocheta*); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 608 (1910).

Characters. — Rather slender, usually black, more or less opaque species measuring from two to six millimeters. Head globular, eyes bare, of the male broadly contiguous on the front, the upper facets enlarged, the lowermost minute, of the female widely separated, the front with a few small fronto-orbitals; face receding between the orbits, cheeks narrow but distinct; antennæ inserted at the middle of the head, very long, plainly three-jointed, the basal joints equal, not strongly setose, the third joint cylindrical, somewhat tapering, blunt apically, about five times as long as wide, the terminal style very short, consisting of a broad quadrate basal segment and a minute end-bristle; proboscis extending obliquely forward, about as long as the head, rather thick, the labellar lobes distinct, palpi long and slender, more hairy and longer in the male; hairs of the occiput dense, not seriate, ocellar bristles fine. Thorax rather strong, its hairs abundant and replacing the discal bristles, lateral and posterior bristles fine, scarcely differentiated, scutellum with a fine marginal fringe; pleuræ entirely bare but pollinose. Abdomen slender, about twice as long as the thorax, shorter in the female; pygidium of moderate to rather large size, the middle valves directed backward, the dorsal valves erect and bearing a posterior appendix, penis arcuate, sometimes quite long; abdomen of the female tapering, the terminal styles long. Legs slender, simple, femora of the male more or less ciliate with fine bristles. Wings a little tapering apically, anal lobe prominently rectangular, axillar angle pronounced, wings of the male darker than those of the female, stigma visible, hind margin thin, no basal bristle, marginal hairs minute, auxiliary vein distinct, ending in the costa at the middle of the wing, third vein with a rather short oblique fork, discal cell large and apically blunt, placed in the middle of the wing, distinctly longer than the equal basal cells, last section of the fifth vein much shorter than the preceding, anal crossvein abruptly reflexed, one-third as long as the anal cell, anal vein rather distinct, almost reaching the margin and separate from the under side of the anal cell, alula small; calypteres with a straight edge and a dense fringe.

Type species: *I. Macquarti* (Pl. 6, Fig. 59), Zetterstedt's first species. These flies appear in early spring and frequent the flowers of willow, currant, etc.

Geographical distribution.

1. *I. ? bicolor*, Bigot, Mission Sc. Cap Horn, Vol. 6, p. 19 [1888] (*Sphicosa*); Cape Horn.
Bezzi, Ann. Mus. Hungar, Vol. 3, p. 458, note [1905] (? *Syneches*);
Brethes, An. Mus. Hist. Nat. Buenos-Aires, Vol. 16, p. 290 [1907]
(? *genus*).
2. *I. conjuncta*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 411 [1900] (*Empis*); Alaska.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 277 [1902] (*Ragas*);
Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 [1903] (? *Empis*);
Melander, Ent. News, Philad. Vol. 17, p. 378 (1905).
3. *I. coriacea*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 126 (1889); Bezzi, Chile.
Ann. Mus. Hungar. Vol. 3, p. 458 (1905).
4. *I. cormus*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 496 [1849] (*Empis*); Canada.
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 400 [1895] (*Empis*);
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 296 [1902] (*Empis*).
5. *I. italica*, Loew, Besch. Eur. Dipt. Vol. 3, p. 216 (1873). S. Europe.

6. *I. luctuosa*, Kirby, Fauna N. Amer. (Zool.) Ins. Vol. 4, p. 311 [1837] (*Empis*); Canada.
Walker, List Dipt. Brit. Mus. Vol. 3, p. 496 [1849] (*Empis*);
Bethune, Canad. Ent. Vol. 13, p. 165 [1881] (*Empis*); Coquillett, Proc.
U. S. Nat. Mus. Vol. 18, p. 397, 400 [1895] (*Empis*); Melander,
Trans. Amer. Ent. Soc. Vol. 28, p. 296 [1902] (*Empis*).
geniculata, Kirby, Fauna N. Amer. (Zool.) Ins. Vol. 4, p. 311 [1837]
(*Empis*); Bethune, Canad. Ent. Vol. 13, p. 165 [1881] (*Empis*);
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 296 [1902] (*Empis*).
7. *I. Maackii*, Loew, Besch. Eur. Dipt. Vol. 2, p. 252 (1871). Siberia.
8. *I. Macquarti*, Zetterstedt, Fauna Ins. Lappon. p. 541 (1838); Dipt. Scand. Europe, Siberia, North
Vol. 1, p. 258 (1842). Vol. 7, p. 3001 (1849). Vol. 11, p. 4269 (1852);
Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 145 (1861); Schiner,
Fauna Dipt. Austr. Vol. 1, p. 111 (1862); Siebke, Cat. Dipt. Norv.
p. 19 [1877] (*Steaphila*); Melander, Trans. Amer. Ent. Soc. Vol. 28,
p. 331 (1902); Wahlgren, Ent. Tidskr. Vol. 31, p. 64 (1910); Frey,
Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 36, pl. 1, f. 2 (1913).
America.
- Pl. 6, Fig. 59.**
? geniculata, Zetterstedt, Dipt. Scand. Vol. 1, p. 375 [1842] (*Empis*); Siebke,
Nyt. Mag. Naturvid. Vol. 12, p. 153 (1864); Loew, Berl. Ent. Zeitschr.
Vol. 11, p. 61 (1867).
setacea, Becker, Berl. Ent. Zeitschr. Vol. 31, p. 130 [1887] (*Steleocheta*); Acta
Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 27 [1900] (*Steleocheta*).
9. *I. nigra*, Philippi, Verh. Zool. bot. Ges. Wien, Vol. 15, p. 751, pl. 28, Chili.
f. 48 [1865] (*Sphicosa*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 458
[1905] (*Sphicosa*).
10. *I. nitidula*, Zetterstedt, Fauna Ins. Lappon, p. 451 (1838); Dipt. Scand. C. and N. Europe.
Vol. 1, p. 260 (1842); Wahlgren, Ent. Tidskr. Vol. 31, p. 65 (1910).
meridionalis, Becker, Wien. Ent. Zeit. Vol. 11, p. 126 [1892] (*Steleocheta*).
styriensis, Becker, Wien. Ent. Zeit. Vol. 10, p. 284 [1891] (*Steleocheta*); Strobl,
Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 34, p. 201 (1898).
11. *I. obscura*, Zetterstedt, Dipt. Scand. Vol. 8, p. 3018 [1849] (*Hilara*); Strobl, N. Europe.
Verh. Zool. bot. Ges. Wien, Vol. 42, p. 180 [1892] (*Hilara*); Frey,
Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 37, pl. 1, f. 3 (1913).
var. *fuscipennis*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 39 (1913).
12. *I. orchestris*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 354 (1902). New Mexico.
13. *I. triangula*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 410 [1900] W. North America.
(*Empis*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 296 [1902]
(*Empis*); Ent. News, Philad. Vol. 17, p. 378 (1906).

10. GENUS ANTHEPISCOPUS, BECKER

Anthepiscopus, Becker, Wien. Ent. Zeit. Vol. 10, p. 281 (1891); Coquillett, Proc. Ent. Soc. Wash.
Vol. 5, p. 246, 260 (1903); Bezzi, Ann. Mus. Hungar, Vol. 2, p. 320 (1904); Melander, Williston,
Man. N. Amer. Dipt. p. 225 (1908); Kertész, Cat. Dipt. Vol. 6, p. 14 (1909).

Characters. — Rather slender black species about three millimeters in length, the males frequently opaque, the females often more shining, bristles relatively fine but often long and abundant. Head globular, eyes of the male broadly contiguous on the front, bare, the upper facets moderately enlarged, of the female the eyes round, widely separated, facets uniform; antennæ inserted at the middle of the head, elongate, plainly three-jointed, the basal joints equal, not strongly setose, the third joint somewhat compressed cylindrical, slightly tapering, blunt at the apex, three to five times as long as wide, the terminal style very short, two-jointed, the outer joint bristle-like; proboscis extending obliquely forward, longer than the head, palpi very long, linear, more or less hairy; occiput hairy, ocellar

bristles fine, female with several reduced fronto-orbitals. Thorax usually with many hairs and bristles more or less definitely arranged, several humeral, posthumeral, notopleural and supra-alar bristles; acrostichals and anterior dorsocentrals short but numerous, scutellum with a fringe of marginal bristles; pleuræ bare of hairs, pollinose. Abdomen slender, twice as long as the thorax, pygidium small, with a pair of erect dorsal valves, penis short, more or less arcuate, female abdomen tapering. Legs slender, simple, posterior femora of the male more or less ciliate with fine bristles. Wings large, hind angle rectangular, costa vanishing on the hind margin, no basal bristle, marginal hairs microscopic, auxiliary vein complete, distinct from the first, stigma usually present, third vein not forked, basal cells three-fourths as long as the large but blunt discal cell, second posterior cell sessile, much narrower than the third, anal crossvein abruptly reflexed and continuous with the under side of the anal cell, anal vein more or less indicated, no alula, alular hairs short; calypteres margined with fine hairs.

Type species : *A. ribesii*. Becker, selected by Coquillett in 1903. The species of this genus are all vernal and show a partiality to the flowers of *Ribes*. There is a possibility that *Microphorus drapetoides* Walker belongs to this genus.

KEY TO THE NORTH AMERICAN SPECIES OF ANTHEPISCOPUS

1. Bristles of the body yellow; proboscis shorter than the head; knobs of the halteres black; femora and tibiae yellowish; sections of the fifth vein ♂ proportioned 4 : 1. *A. FLAVIPILOSUS*, Coquillett.
 Bristles black; proboscis longer than the head; last section of the fifth vein not less than one-third the preceding 2.
2. Entirely black including the legs, halteres and calypteres, ♂ ♀ 3.
 At least the knees yellowish, ♀; stem of the halteres and calypteres paler, ♀; style distinct 5.
3. Sections of the fifth vein 3 : 2; style distinct; penis trumpet-shaped; ten scutellar bristles; femora ciliate. — **Pl. 8, Fig. 80** *A. STENTOR*, Melander.
 Sections of the fifth vein 2 : 1; style minute; penis flexed but not enlarged at the end 4.
4. The two prongs of the dorsal valve of the pygidium subequal; lateral bristles of the thorax sparse; scutellum with about ten bristles; flexor cilia of the hind femora inconspicuous; last joint of antennæ ♀ three times as long as broad; palpi ♀ rounded at the end *A. POLYGYNUS*, nov. sp. (1).

(1) ***Anthepliscopus polygynus***, nov. sp. — Male. Length 3 mm. Entirely black including the legs, halteres and calypteres. Head subopaque, black, upper facets moderately large; third joint of the antennæ but little tapering, four times as long as broad, the style very short, its basal joint square and one-fifth as wide as the antenna; proboscis projecting as far as the head-height, palpi one-half as long as the proboscis and furnished with a few long hairs; occipital hairs abundant. Mesonotum opaque black, but when viewed from in front brownish gray, its bristles long but sparse, two posthumeral, four notopleural, acrostichals biserial, eight to ten scutellar bristles. Abdomen nearly opaque, with long black hairs, pygidium rather small, the furcation of the dorsal valve distinct, the posterior branch nearly as long as the anterior, penis shaped like an interrogation-mark (?). Wings with uniform light infumation, stigma distinct, veins blackish, sections of the fourth vein proportioned 0.7 : 0.5 : 1 : 1.5, of the fifth vein 2 : 1, anal vein faint but almost reaching the margin.

Female. Facets uniform; third joint of the antennæ broader, less than four times as long as wide, the style smaller; palpal hairs short; front shining, with two small fronto-orbitals. Thorax and abdomen subshining, bristles shorter, sections of the fourth vein proportioned 0.5 : 0.4 : 1 : 1.3.

One male and seven females; Deer Park, Washington, May 5, 1912 (Melander).

- Posterior prong of the dorsal valve minute; lateral bristles of the thorax ♂ abundant; scutellum ♂ with about twenty bristles; flexor cilia of the hind tibiae ♂ longer than the diameter of the femur; third joint of antennae ♀ four times as long as wide; palpi ♀ pointed *A. HIRSUTUS*, nov. sp. (1).
5. ♀ palpi very slender, longer than the head; halteres, calypteres and legs including the coxae yellow; sections of the fifth vein 5 : 2; thorax shining *A. LONGIPALPIS*, nov. sp. (2).
- Palpi much shorter than the head; knob of the halteres black 6.
6. Thorax shining; coxae and femora black or brown; sections of the fifth vein 5 : 2; stigma distinct. *A. NUPTUS*, nov. sp. (3).

(1) *Anthepliscopus hirsutus*, nov. sp. — Male. Length 3.2 mm. Entirely black including the legs, halteres and calypteres, almost opaque. Upper facets slightly enlarged; third joint of the antennae five times as long as broad, slightly tapering, blunt at the end, style very short, the basal segment square and one-fifth as wide as the base of the third joint; proboscis one-half longer than the head, palpi linear, elongate, two-thirds as long as the proboscis, loosely provided with long black hairs; hairs of the occiput rather abundant. Thorax showing a blackish gray median vitta when viewed from in front, its bristles long and numerous, about eight humerals, three posthumerals, ten notopleurals, five supra-alars, twenty scutellars, the acrostichals biseriate. Abdomen with moderate long fine blackish hairs; pygidium of moderate size, dorsal valves with a minute prong at the middle of the posterior edge, penis rectangularly bent at the middle, the apical part curled on itself. Hairs of the legs black, femoral hairs long, abundant on the middle femora, hind femora ciliate, the flexor hairs nearly twice as long as the diameter of the femur and fifteen in number. Wings nearly hyaline, stigma distinct, veins black, discal cell blunt, three times as long as broad, sections of the fourth vein proportioned 0.6 : 0.4 : 1 : 1.6, of the fifth vein 5 : 3.

Female. Subshining, lightly dusted; hairs and bristles reduced in size and number; facets uniform; palpi shortened. Five humerals, five notopleurals, supra-alars indistinct; femora not ciliate.

Type from Chehalis, Washington, March 19, 1911. Paratypes from Chehalis and Seattle, Washington, March 13 to 24; seven specimens, taken on *Salix* blossoms by the author.

(2) *Anthepliscopus longipalpis*, nov. sp. — Female. Length 2.5 mm. Piceous black, shining, legs, halteres and root of the wings yellow; bristles black. Head shining, two fronto-orbitals; third joint of the antennae thick but bluntly tapering, about three times as long as broad and five times as long as the style; proboscis nearly twice as long as the head, palpi linear, one-half longer than the third joint of the antennae and two-thirds as long as the proboscis; occipital hairs sparse but long. Dorsocentral and acrostichal setulae sparse long and fine, the latter biseriate, two small posthumerals, three long and several short notopleurals, ten scutellar bristles. Abdomen and its hairs brownish. Legs slender, yellow, including the coxae, but the tips of the tarsi darkened, the hairs yellow. Wings with a cinereous tinge, no stigma, veins narrow and brownish yellow, discal cell two and a half times as long as broad, posterior crossvein transverse, sections of the fourth vein proportioned 0.6 : 0.3 : 1 : 1.3, of the fifth vein 5 : 2, anal vein very weak.

One specimen, Arlington, Washington, May 21, 1908, found on a window (Melander).

(3) *Anthepliscopus nuptus*, nov. sp. — Male. Length 3.8 mm. Shining, head and thorax very lightly pollinose, entirely black including the halteres and calypteres, the knees and the anterior femora and tibiae brownish. Upper facets moderately enlarged; third joint of the antennae three and a half times as long as the width at the base, narrowed beyond the basal fourth, tapering only at the tip, the basal joint of the style oblong, one-third as long as the width of the base of the third antennal joint; proboscis one-half longer than the head, palpi elongate, linear, the hairs sparse. Thoracic bristles long, but the hairs fine and short, about five small humerals, five long notopleurals, twelve scutellars, the dorsocentrals not differentiated excepting the posterior pair, irregularly biseriate, acrostichals irregularly quadriseriate. Hairs of the abdomen long, fine and abundant; pygidium moderately large, the lateral valves circular except for their broad posterior process, dorsal valves short, chitinated, the posterior prong short and placed rather near the tip, penis slender, only gently sinuous. Hairs of the legs short, anterior legs broadly fuscous about the knees, middle femora with sparse hairs, hind femora ciliate below only toward the knee, the hairs there about as long as the diameter of the femur. Wings with a light infumation, stigma distinct, veins blackish, discal cell very blunt, two and a half times as long as broad, sections of the fourth vein proportioned 2.1 : 1 : 3 : 4.5, of the fifth vein 2 : 1.

Female. Pollen coating of the thorax a little more evident; facets uniform; palpi shortened; bristles of the thorax short and less numerous, there being but three distinct notopleurals, ten scutellars, etc.; hairs of the abdomen short; fuscous color of the legs more extended, no ciliation; base of the halteres and calypteres fuscous; wings subhyaline, veins brown.

Numerous specimens of each sex from flowers of *Ribes*; Tacoma, Washington, April 12, 1913. Three females also from Olga, Washington, May 18, 1910.

Thorax cinereous dusted, opaque; coxæ. anterior femora and base of the hind femora pale yellow; sections of the fifth vein 2 : 1, no stigma. A. FLAVICOXA, nov. sp. (1).

Geographical distribution.

1. *A. antipodus*, Bezzi, Ann. Mus. Hungar, Vol. 2, p. 339. f. 3, 4 (1904). New South Wales.
2. *A. celebs*, Becker, Wien. Ent. Zeit. Vol. 10, p. 283 (1891); Acta Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 27 (1900). Alps; Siberia.
3. *A. consobrinus*, Zetterstedt, Fauna Ins. Lappon, p. 541 [1838] (*Rhamphomyza*). C. & N. Europe.
myrica, Haliday, Walker, Ins. Brit. Dipt. Vol. 1, p. 111 [1851] (*Euthyneura*);
 Loew, Syst. Besch. Vol. 2, p. 251, note 2 [1871] (*Euthyneura*); Lundbeck,
 Dipt. Dan. Vol. 3, p. 211 [1910] (*Euthyneura*); Wahlgren, Ent. Tidskr.
 Vol. 31, p. 80, f. 12 [1910] (*Euthyneura*); Frey, Acta Soc. Sc. Fenn. Hel-
 singfors, Vol. 37 (3), p. 60 [1913] (*Euthyneura*).
rostratus, Zetterstedt, Dipt. Scand. Vol. 1, p. 250, 415, note 2 [1842] (*Anthalia*),
 Vol. 8, p. 2998 [1849] (*Anthalia*); Loew, Besch. Eur. Dipt. Vol. 2, p. 251
 [1871] (*Euthyneura*).
4. *A. flavicoxa*, nov. sp. Washington.
5. *A. flavipilosus*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 413 [1900] British Columbia.
 (*Microphorus*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 257
 [1902] (*Euthyneura*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 263
 [1903] (*Microphorus*).
6. *A. hirsutus*, nov. sp. Washington.
7. *A. longipalpis*, nov. sp. Washington.
8. *A. nuptus*, nov. sp. Washington.
9. *A. ædalinus*, Zetterstedt, Fauna Ins. Lappon, p. 570 (1838) ♀ (*Rhampho- myza*); Dipt. Scand. Vol. 1, p. 413 [1842] (*Rhamphomyia*); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 172 [1861] (*Rhamphomyia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 57 [1910] (*Rhamphomyia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 34, pl. 1, f. 1 (1913). N. Europe.
fraternellus, Zetterstedt, Fauna Ins. Lappon, p. 570 [1838] (*Rhamphomyza*);
 Dipt. Scand. Vol. 1, p. 419 [1842] (*Rhamphomyia*); Bonsdorff, Finl. tvåv.
 Ins. Dipt. Vol. 1, p. 172 [1861] (*Rhamphomyia*); Frey, Acta Soc. Sc. Fenn.
 Helsingfors, Vol. 31 (9), p. 18, note [1908] (*Rhamphomyia*); Wahlgren,
 Ent. Tidskr. Vol. 31, p. 57 [1910] (*Rhamphomyia*).
 ? *furcatus*, Zetterstedt, Dipt. Scand. Vol. 1, p. 252 [1842] (*Anthalia*); Schiner,
 Fauna Dipt. Austr. Vol. 1, p. 110 [1862] (*Empis*); Loew, Besch. Eur.
 Dipt. Vol. 2, p. 253, note [1871] (*Iteaphila maackii* ♀ ?); Kertész, Cat.
 Dipt. Vol. 6, p. 81 [1909] (*Euthyneura* ?); Frey, Acta Soc. Sc. Fenn.
 Helsingfors, Vol. 37 (3), p. 35 (1913).
niger, Zetterstedt, Dipt. Scand. Vol. 1, p. 251 [1842] (*Anthalia*); Wahlgren,
 Ent. Tidskr. Vol. 31, p. 80 [1910] (*Euthyneura*).
10. *A. polygynus*, nov. sp. Washington.

(1) *Antheipiscopus flavicoxa*, nov. sp. — Female. Length 2.8 mm. Opaque, cinereous black; base of the legs yellow; bristles black. Head lightly cinereous, five fronto-orbital setulæ; third joint of the antennæ broad, only slightly tapering, almost four times as long as broad, style nearly invisible; proboscis as long as the head, thick, palpi narrowly clavate, blunt at the tip, three-fourths as long as the third joint of the antennæ. Three posthumeral, three notopleurals, ten scutellars, anterior dorsocentrals setuliform, arranged in a definite row, similar to the biseriata acrostichal setulæ. Coxæ, anterior femora and tibiæ and base of the hind femora clear yellow, remainder of the legs blackish brown, the hairs black. Calypteres and stem of the halteres yellow, knob blackish. Wings hyaline, veins narrow but blackish, stigma distinct, discal cell three times as long as broad, one-half longer than the second basal cell, sections of the fourth vein proportioned 0.6 : 0.4 : 1 : 1.5, of the fifth vein, 1 : 0.6, anal vein indicated by only a weak fold.

One specimen; Kettle Falls, Washington, May 3, 1912.

11. *A. ribesii*, Becker, Wien. Ent. Zeit. Vol. 10, p. 282, pl. 3, f. 1-3 (1891); C. Europe.
 Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 34, p. 201
 (1898).
 var. *nigripes*, Strobl, Glasn. Bosn. Herzeg. Sarajevo, Vol. 10, p. 402 (1898); Hercegovina.
 Mitteil. Bosn. Herzeg. Sarajevo, Vol. 7, p. 564 (1900).
12. *A. stentor*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 348 [1902] New Mexico.
 (*Euthyneura*). — **Pl. 8, Fig. 80.**
13. *A. Zontaki*, Nowicki, Rocznik tow. nauk. Krakow, Vol. 42, p. 73 [1871] C. Europe.
 (*Microphorus*); Loew, Besch. Eur. Dipt. Vol. 2, p. 249 [1871] (*Micro-*
 phorus), Vol. 3, p. 320 [1873] (*Microphorus*).

11. GENUS BROCHELLA, NOV. GEN.

Characters. — Heavily pruinose species suggestive of *Clinocera*, with long projecting proboscis, no antennal style and with geniculate hind tibiae. Head horizontally lengthened, occiput very convex, subconical, eyes of both sexes widely separate, bare, facets uniform, ocellar triangle not elevated, face very short, vaulted over the mouth-opening, facial orbits not differentiated, sides of face continuous with the narrow cheeks; antennae large; joints distinct, the first joint short, cylindrical, nearly bare, the second joint globose, with a whirl of inconspicuous setulae, the third joint compressed oval, much longer and deeper than the basal joints together, with scattered brief pubescence, no trace of style or arista; proboscis twice as long as head, thick and straight, projecting obliquely forward, palpi ribbon-like, bisetose, attached at basal one-fourth of proboscis, incumbent; ocellar, postocellar and the single vertical seta short, occiput with scattered short bristles, lower side of head with straggling isolated hairs. Thorax somewhat flattened before the scutellum, devoid of pubescence but with setae as follows; a complete row of 8-12 uniform dorsocentrals, no acrostichals, three small humeral, three small posthumeral, one small notopleural, two supra-alar, one intra-alar, one postalar, two converging scutellar; pectus with weak straggling hairs, a cluster of a dozen metapleural setulae, no other pleural hairs. Abdomen depressed, seven segments before the large pygidium of the male, last three segments of female short, telescopic within the seventh segment, second segment twice girdled by closely placed shining pittings, less conspicuous in female, hairs not conspicuous; pygidium globose, erect, dorsal valves oval directed posteriorly and parallel, side valves large petaloid, somewhat truncate apically, inferior valves small, rounded, penis straight, extending backwards, compressed and furnished with a fine velvety brush underneath. Legs pollinose, not bristly, hind femora and tibiae robust, coxae with scattered hairs, front femora with fine setae, posterior femora short-setose beneath, hind tibiae geniculate at the very base, straight, shorter than the femur, in male tipped with an umbo which fits into a depression of the femur next to the trochanter and fimbriate exteriorly to the umbo; tarsi normal, pulvilli distinct, empodia microsetiform.

Wings fully developed, no basal seta, costa continuing around entire margin, auxiliary vein straight, stopping opposite the anterior crossvein, third vein forked before end of second vein, discal cell large, located at middle of wing, emitting three veins, basal cells long, coextensive, anal crossvein reflexed, nearly in line with the lower-outer edge of the second basal and continuous with the under vein of the anal cell, the anal vein represented only by a disjointed fold, anal vein weak, no axillar incision; calypteres with weak fringe.

Type species: *Brochella monticola*, nov. sp. The genus has been placed with the Empidinae even though it has no near relatives in that subfamily. The habits and habitus of the species are suggestive of the *Clinocera* group, but there also it would be isolated. The low-placed antennae, lack of style,

long proboscis, reflexed anal vein, and distinct fold under the humeral crossvein at the origin of the second basal cell do not indicate close kinship to the Clinoceratinæ.

Geographical distribution.

1. *B. monticola*, nov. sp. (1). — Pl. 2, Fig. 16.

Washington.

12. GENUS RAGAS, WALKER

Ragas, Walker, Ent. Mag. London, Vol. 4, p. 229 (1837); Westwood, Gen. Syn. p. 133 (1840); Walker, Ins. Brit. Dipt. Vol. 1, p. 102 (1851); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 561 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 111 (1862); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 121 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 256 (1903); Melander, Ent. News, Philad. Vol. 17, p. 378 (1906); Kertész, Cat. Dipt. Vol. 6, p. 84 [1909] (*Rhagas*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 5 (1909); Wahlgren, Ent. Tidskr. Vol. 31, p. 44, 65 [1910] (*Rhagas*).

Characters. — Small dark-colored rare species of generalized structure. Eyes of the male subcontiguous above the antennæ, separated only by a line, the facets uniform and bare, of the female broadly separated on the short front, female with two small fronto-orbitals, face very short and broad, the large quadrate epistome receding, cheeks linear; antennæ short, basal joints minute and globular, third joint long and conical, style very thick, nearly half as long as the third joint, its basal segment four times as long as broad and tipped with a short bristle; proboscis short and chitinized, the labrum incurved, broad at the base and pointed, palpi very short, retracted, horizontal. Thoracic bristles short, one humeral, three posthumeral, about eleven dorsocentral and three notopleural, but the scutellum with six strong bristles; pleuræ bare. Abdomen twice as long as the thorax, tapering in the female and tipped with two long styles, in the male with a terminal small open pygidium which bears a pair of lateral slender curved pointed valves and a pair of erect dorsal processes. Legs simple, bristleless, hairs sparse and inconspicuous. Wings broad, anal angle strong, no axillar excision, costa enclosing the entire wing, no humeral bristle, auxiliary vein distinct, complete and ending by a gentle curve in the costa, fork of the third vein long, contact of the discal cell with the third posterior cell longer than with the fourth, anal crossvein reflexed, anal vein continuous with the under side of the anal cell.

Type species: *R. unica*, Walker. — Pl. 8, Fig. 84.

Geographical distribution.

1. *R. *? generosa*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 94, 129, pl. 12, Baltic Amber. f. 7-9 (1908).
2. *R. unica*, Walker, Ent. Mag. London, Vol. 4, p. 229 (1837); Ins. Brit. Dipt. Europe. Vol. 1, p. 102, pl. 3, f. 3 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 111 (1862); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 3 (1908), Vol. 37 (3), p. 46 (1913). — Pl. 8, Fig. 84.

(1) ***Brochella monticola***, nov. sp. (Pl. 2, Fig. 16). — Male. Length 4.5 mm. Black in groundcolor, heavily pruinose or pollinose. Front brown, face gray, proboscis silvery white, occiput brownish gray. Notum brownish gray becoming brown on dorsocentral rows, scutellum, pleuræ and abdomen cinereous; pygidial valves hairy. Wings uniformly infumated, veins brown, no stigma, a crossvein near basal third of discal cell.

Female. Hind femora less robust than in male, the tibiæ without umbo or fringe at apex.

Types Seventeen males, seven females, found by the writer along the rills above Paradise Park on Mt. Rainier, Washington, during the middle of August, 1917. A visit to the same locality in the latter part of August of the same year and again in July, 1922, failed to disclose additional specimens, although special effort was made to discover them.

13. GENUS PHILETUS, NOV. GEN.

Characters. — Black opaque species with slender black legs. Head produced obliquely downward, the antennæ placed low and the ocelli far forward; eyes of both sexes widely separated, bare, facets almost uniform; sides of the short front slightly diverging behind, two pairs of small fronto-orbitals, face square then receding as the slightly longer epistome; antennæ shorter than the head, the first joint minute, the second joint globular and with minute setulæ, the third joint ovate-conical ending in a short thick arista whose short basal segment is one-fifth as long as the subulate distal portion; proboscis one-half as long as the head, extending downward and slightly forward, the labrum needle-like, the labium fleshy, palpi short and rather spatulate; hairs of the occiput sparse, becoming gradually stonger above, one pair of parallel ocellars and one of diverging post-ocellars. About eight pairs of dorsocentrals, one humeral, two posthumeral, three notopleural, two supra-alar and four scutellar bristles; pleuræ bare but entirely pruinose. Abdomen slender, one-half longer than the thorax, second segment with a double transverse row of pittings and the second to the sixth segments with two pits on each side; pygidium large, globose, terminal, dorsal valves long, narrow, and recumbent, upper lateral valves deeply and horizontally cleft from the convex sides, ventral part not compressed, bearing the short curved slender penis; abdomen of the female entirely tapering, ending in two styles. Legs slender, simple, not bristly, pulvilli small. Wings with nearly parallel sides, slightly broadest beyond the middle, two and two-thirds times as long as broad, anal angle broadly rounded, costa continuing around the entire wing, basal bristles small, auxiliary vein distinct, complete, ending in the costa at two-fifths the length of the wing, third vein arising at one-third the distance between the humeral and anterior crossveins, its distal fork rather large, first basal cell a little longer than the second and as long as the discal cell, sections of the fifth vein equal, anal crossvein abruptly recurved, confluent with the underside of the anal cell but reaching only one-fourth the distance back, anal vein obsolete, no alula; calypteres with a straight edge and the usual fringe.

Type species: *Ph. memorandus*, nov. sp. Two subalpine North American species have been discovered by the author.

Geographical distribution.

1. *Ph. memorandus*, nov. sp. (1). — Pl. 7, Fig. 66; Pl. 8, Fig. 78. W. United States.
2. *Ph. schizophorus*, nov. sp. (2). — Pl. 8, Fig. 81. Washington.

(1) *Philetus memorandus*, nov. sp. (Pl. 7, Fig. 66; Pl. 8, Fig. 78). — Male. Length 2.75 mm. Black, the front, face, pleuræ and abdomen cinereous pollinose. Third joint of the antennæ two and a half times as long as wide, the arista two-thirds as long as the third joint; mouthparts black, face square. Dorsum of the thorax olivaceous brown. Hairs of the first segment of the abdomen rather dense, pygidium black, coated with gray villosity, the two upper pairs of processes narrow, parallel and pruinose, the second jointed with the middle valve, penis curving to meet the second process. Wings hyaline, veins dark brown, second submarginal cell three times as long on the costa as the first, sections of the fourth vein proportioned 1 : 0.3 : 1 : 1.6, vein between the basal cells weak, discal cell two and a half times as long as broad, anal vein indicated by a weak transparent fold, hairs of the hind margin shorter than the anterior crossvein, alular hairs short and not dense.

Female. Pruinosity of the abdomen less evident, face above the epistome less deep than broad.

Type and allotype, Mount Constitution, Washington, the male collected July 22, 1909, the female, May 17, 1910. Five paratypes collected by the author on the South slope of Mount Rainier, Washington, and another at the Canyon Camp, Yellowstone Park, Wyoming.

(2) *Philetus schizophorus*, nov. sp. (Pl. 8, Fig. 81). — Differing from the preceding species in the genitalia but otherwise similar. The uppermost pair of pygidial processes shining, broadly quadrate at base and then deeply and widely excised so as to terminate in two long thin divaricating fingers, the second process arising from the dorsal by a narrow polished stem, penis very short and thin, not attaining the second process.

Two specimens, Van Trump Creek, above Christine Falls, Mount Rainier, 1 September, 1917 (Melander).

14. GENUS *HESPEREMPIS*, MELANDER

Hesperempis, Melander, Ent. News, Philad. Vol. 17, p. 377 (1906); Williston, Man. N. Amer. Dipt. p. 226 (1908); Kertész, Cat. Dipt. Vol. 6, p. 84 (1909); Coquillett, Proc. U. S. Mus. Vol. 37, p. 551 (1910).

Ragas, Melander (not Walker), Trans. Amer. Ent. Soc. Vol. 28, p. 276 (1902).

Characters.— Bristleless, entirely opaque dusted, blackish or yellow species with yellow legs. Eyes separated, broadly so on the front, and in the male narrowly just beneath the antennæ, the sides of the face diverging below, facets bare, of uniform size in the female or the anterior slightly larger in the male; face of the female short and quadrate, the lower part retracted as the pollinose epistome; antennæ inserted above the middle of the head, distinctly three-jointed, the first joint longer than the second, the basal joints with only a few microscopic hairs, the third joint compressed conical, terminated by a short two-jointed style whose basal segment is thick and whose outer segment is short and bristle-like; proboscis very short and thick, the labella broad fleshy and hairy, palpi flattened, as long as the proboscis and incumbent on it, spongy pubescent but almost devoid of hairs; no cheeks; ocellar triangle not elevated, ocellar and vertical bristles reduced in size so as to be almost invisible. Thorax not much elevated, entirely without bristles, scutellum with six or eight short marginal hairs, metapleuræ bare, at most with a couple of microscopic hairs. Abdomen slender, longer than the thorax, depressed, hairs short and sparse, a transverse series of small round pits present at the base of the second segment; pygidium terminal globular, with a flat dorsal valve and moderately large convex lateral valves, penis short and thick, no projecting appendages, abdomen of the female tapering to the end styles. Legs slender, simple, rather sparsely provided with fine pubescence, but entirely devoid of bristles; pulvilli small. Calypteres with a straight edge and reduced fringe. Wings long and slender, anal angle obtusely rounded, not prominent, costa extending around the entire wing, no basal bristle, auxiliary vein straight, distinct, ending in the costa just before the middle of the wing, a very faint stigmal spot, third vein forked, basal cells elongate and equal, discal cell rather narrow, often pointed apically, sections of the fourth vein proportioned 0.8 : 0.2 : 1 : 1.5, of the fifth vein, 1.4 : 0.5 : 1 : 1.2, anal crossvein abruptly recurved and fused with the under side of the anal cell but not reaching back to the middle of the cell, anal vein evanescent.

Type species : *H. Mabelæ* (Pl. 7, Fig. 61), by original designation. This species occurs sparingly in the deep shade of fir forests, flying close to the ground.

Geographical distribution.

1. *H. Mabelæ*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 277, f. 98 [1902] Idaho. Montana.
(*Ragas*); Ent. News, Philad. Vol. 17, p. 377, fig. (1906). — **Pl. 7,**
Fig. 61.
2. *H. sanduca*, nov. sp. (1). California.

(1) ***Hesperempis sanduca***, nov. sp. — Male. Length 2.6 mm. Entirely pale yellow except the eyes and the last two joints of the hind tarsi, not pollinose but only subshining, hairs and bristles yellow. Third joint of the antennæ bluntly conical, scarcely tapering, twice as long as wide and six times as long as the brown style. About fifteen short dorsocentral hairs, six scutellars; metapleuræ with two microscopic hairs. Hairs of the abdomen rather long. Legs simple, bristleless. Wings clear hyaline, veins weak and yellow, second posterior cell sessile, the vein between the discal and the third posterior cells angulate at two-thirds its length and sending a short spur into the discal cell, anal vein nearly obsolete, its base continuous with the under side of the anal cell.

Type, San Francisco, California, collected by Charles Fuchs. A female from Forest Grove, Oregon, June 2 (F. R. Cole).

15. GENUS HILARA, MEIGEN

Hilara, Meigen, Syst. Besch. Vol. 3, p. 1 (1822); Curtis, Brit. Ent. Vol. 8, p. 130 (1826); Macquart, Dipt. N. France, Vol. 3, p. 108 (1827); Hist. Nat. Dipt. Vol. 1, p. 340 (1834); Zetterstedt, Fauna Ins. Lappon, p. 554 (1838); Westwood, Gen. Syn. p. 132 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 335 (1842); Boitard, Man. Ent. Vol. 3, p. 320 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 97 (1851); Rondani, Dipt. Ital. Vol. 1, p. 151 [1856] (*Hylara*); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 562 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 112 (1862); Lioy, Atti Inst. Sc. Veneto, Venezia, 1864, p. 601 (1864); Beling, Arch. Naturg. Berlin, Vol. 48, p. 240 (1882); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 117 (1889); Strobl, Verh. Zool.-bot. Ges. Wien. Vol. 42, p. 85, 182 (1892); Becker, Wien. Ent. Zeit. Vol. 13, p. 156, 159 (1894); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389, 394 (1895); Williston, Man. N. Amer. Dipt. p. 75 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 262 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 250, 263 (1903); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 320, 341, note (1904); Melander, Williston, N. Amer. Dipt. Man. p. 226 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302, 375 (1909); Kertész, Cat. Dipt. Vol. 6, p. 84 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 552 (1910); Grünberg, Süßwasserf. Deutschl. 2a, Vol. 1, p. 154 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 140 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 44, 65 (1910); White, Proc. Roy. Soc. Tasmania, 1916, p. 220 (1917); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 357 (1920).

Characters. — Medium-sized species, usually black or blackish in color although sometimes yellowish, distinguished by the anterior bend at the end of the auxiliary vein and by the almost universally enlarged front metatarsi of the male. A genus rich in species and hence presenting a wide range in the variability of characters, particularly of the chaetotaxy and the secondary sexual devices. Head globular, eyes separated in both sexes, except in a few species where the males are holoptic and have the upper facets enlarged, otherwise the facets are uniform; front and face each quadrate, fronto-orbital bristles usually prominent, cheeks linear; antennæ inserted at the middle of the head, distinctly three-jointed, as long as the head, the basal joints short and with few setulæ, the first joint cylindrical, the second globular, the third compressed, conical, ending in a lengthened three-jointed style, whose basal segment is minute and quadrate and whose apical part is a short bristle; proboscis as long as the head or somewhat shorter, vertical, the labrum sharp, chitinated, a little incurved, the labium shorter and with prominent labellar lobes, palpi porrect, up-curved and hairy; occiput more or less hairy, ocelli not elevated, distant, the ocellar bristles separated, thorax rather robust, wider than the head, the metathorax short and declivous, bristles usually reduced, the rows of discal bristles usually replaced by hairs, pronotum often with a lateral bristle, notopleural bristles evident but variable; pleuræ pollinose, metapleuræ not setose. Abdomen more or less cylindrical, the seventh and eighth segments of the male usually small to accommodate the reflexed epipygium; abdomen of the female tapering, ending in two thin styles; epipygium usually compressed, the ventral keel ending in a curved tapering process, the lateral valves extending forward, variously fissate and spiny at the anterior end, dorsal valves and penis hidden. Legs not lengthened, rather hairy, usually with variable bristles on the tibiæ, femora rarely thick, front metatarsi of the male almost always greatly swollen and often cristate with long hairs, pulvilli of moderate size, empodium distinct. Anal angle rather prominent but rounded, costa continuing around the entire margin, stigma formed, auxiliary vein complete and distinct, curving forward at the end to enter the costa, third vein with a long fork, basal cells coextensive, discal cell as long as

the basals, anal crossvein abruptly reflexed, usually extending back half the length of the anal cell, the anal vein usually arising at the juncture of the crossvein with the under side of the cell.

Type species: *H. maura*, Fabricius (Pl. 6, Fig. 55), selected by Curtis in 1838. The species of *Hilara* are common along small streams, often skimming over the surface in an aerial dance. The males of some species have the habit of enveloping their prey in a web spun from the mouth. The genus is best developed in the Northern Hemisphere, although a few species are known from South of the equator.

Geographical distribution.

1. *H. abdominalis*, Zetterstedt, Fauna Ins. Lappon, p. 555 (1838); Dipt. Scand. Vol. 1, p. 337 (1842); Strobl, Verh. Ges. Zool.-bot. Wien. Vol. 42, p. 180 (1892); Wahlgren, Ent. Tidskr. Vol. 31, p. 77 (1910). N. Europe.
2. *H. aberrans*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 376 (1909). Bolivia.
3. *H. abnormis*, Bezzi, ibidem, Vol. 91, p. 377 (1909). Peru.
4. *H. aeronetha*, Mik, Wien. Ent. Zeit. Vol. 11, p. 81 (1892); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 158, note (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 89 (1893); Mik, Wien. Ent. Zeit. Vol. 13, p. 283 (1894); Lundbeck, Dipt. Dan. Vol. 3, p. 162, f. 59 (1910); Verrall, Ent. Mag. London, Vol. 48, p. 24 (1912). C. Europe.
var. *angustifrons*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 132, 158, note (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 89 (1892). C. Europe.
5. *H. æthiops*, Zetterstedt, Fauna Ins. Lappon, p. 556 (1838); Dipt. Scand. Vol. 1, p. 347 (1842); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 132, note (1892). N. Europe.
- 6 ? *H. albipennis*, Roser, Correspondenzbl. Landw. Würtemb. Stuttgart, Vol. 1, p. 53 (1840). C. Europe.
7. *H. albitarsis*, Roser, ibidem, Vol. 1, p. 53 (1840). C. Europe.
8. *H. albocingulata*, Wood, Ent. Mag. Lond. Vol. 49, p. 13 (1913). England.
9. *H. algecirascensis*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 24 (1899). Spain.
10. *H. almeriensis*, Strobl, Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 310 (1906). Spain.
11. *H. amaranta*, Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 123 (1907). Tunis.
12. *H. anglodanica*, Lundbeck, Naturh. Medd. Kjöbenhavn, Vol. 64, p. 325 (1913). Denmark.
13. *H. atra*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 205 : Cent. 3, No. 42 (1862); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 266 (1902). United States.
14. *H. aurata*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 411 (1900); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 269 (1902). Alaska.
15. *H. baculifer*, Melander, ibidem, Vol. 28, p. 271, f. 96 (1902). Georgia.
16. *H. balnearia*, White, Proc. Roy. Soc. Tasmania, 1916, p. 223, f. 41 b (1917). Tasmania.
17. *H. barbipes*, Frey, Medd. Soc. Sc. Fenn. Helsingfors, Vol. 33, p. 67 (1907); Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 56, f. 9 (1913). Finland.
18. *H. bares*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 491 (1849); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 359 (1920). E. Indies.
19. *H. basalis*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 206 : Cent. 3, No. 45 (1862); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 267 (1902). Illinois.
20. *H. Beckeri*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 143 (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 90 (1892); Lundbeck, Dipt. Dan. Vol. 3, p. 167, f. 61 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 76 (1910); Verrall, Ent. Mag. Lond. Vol. 48, C. & N. Europe.

- p. 25 (1912); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 49 (1913).
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125. *H. orientalis*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 474 (1912). Formosa.
126. *H. palmarum*, Strobl, Mém. Soc. Esp. Hist. Nat. Vol. 3, p. 309 (1906). Spain.
127. *H. paludosa*, Becker, Deutsche Ent. Zeitschr. 1910, p. 643 (1910). Corsica.
128. *H. pectinipes*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 116 (1892); C. Europe.
Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 88 (1892).
129. *H. perplexa*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 379 Peru.
(1909).
130. *H. perturbans*, Bezzi, ibidem, Vol. 91, p. 380 (1909). Chile, Peru.
131. *H. perversa*, Oldenberg, Arch. Naturg. Berlin, Vol. 81, A (9), p. 166 Germany.
(1916).
132. *H. peshawarensis*, Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 360 (1920). N. W. India.
133. *H. philina*, Speiser, Kilimandjaro-Meru Exped. Vol. 10, p. 108 (1910). Africa.
134. *H. pilipes*, Zetterstedt, Fauna Ins. Lappon. p. 555 (1838); Pipping, N. Europe.
Not. Sällsk. Fenn. Förh. Helsingfors, Vol. 4, p. 114 (1858); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 161 (1861); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 51, f. 8 (1913).
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135. *H. pilosa*, Zetterstedt, Dipt. Scand. Vol. 1, p. 324 (1842); Walker, Ins. Brit. Dipt. Vol. 1, p. 99 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 115 (1862); Beling, Arch. Naturg. Vol. 48, p. 219 (1882); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 129 (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 89 (1892); Wahlgren, Ent. Tidskr. Vol. 31, p. 76 (1910); Oldenberg, Arch. Naturg. Berlin, Vol. 81 (9), p. 169 (1916).
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136. *H. pilospectinata*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 169 (1892). C. Europe.
137. *H. pinctorum*, Zetterstedt, Dipt. Sc. Vol. 8, p. 3017 (1849); Jaroschewsky, Arb. Ges. Naturf. Univ. Kharkoff, Vol. 11, p. 356 (1877); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 115 (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 88 (1893); Wien. Ent. Zeit. Vol. 18, p. 20 (1899); Poppius, Medd. Soc. Fenn. Helsingfors, Vol. 32, p. 107 (1906); Wahlgren, Ent. Tidskr. Vol. 31, p. 76 (1910).
var. major, Strobl (1892, not 1909), Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 116 (1892). C. Europe.
138. *H. plebeia*, Walker, Trans. Ent. Soc. Lond. n. s. Vol. 4, p. 148 (1857); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 270 (1902). North America.
139. *H. pruinosa*, Wiedemann-Meigen, Syst. Besch. Vol. 3, p. 7 (1822); Walker, List Dipt. Brit. Mus. Vol. 3, p. 490 (1849); Ins. Brit. Dipt. Vol. 1, p. 100 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 114 (1862); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 133 (1892); Mik, Wien. Ent. Zeit. Vol. 13, p. 283 (1894); Progr. Akad. Gym. Wien, p. 19 (1894). C. & S. Europe.
vulnerata, Schiner, Fauna Dipt. Austr. Vol. 1, p. 115 (1862); Becher, Denkschr. Akad. Wiss. Wien, Vol. 45, p. 147, pl. 3, f. 13 (1882); Mik, in Beck, Fauna Bernstein, Vol. 2 (2), p. 59 (1885).
140. *H. pseudochorica*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 109 (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 88 (1892); ibidem, Vol. 46, p. 67 (1909); Lundbeck, Dipt. Danica, Vol. 3, p. 155, f. 54 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 56 (1913). C. & N. Europe.
141. *H. pseudocornicula*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 174 (1909). Spain.
142. *H. pseudosartrix*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 152 (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 90 (1892). C. Europe.
var. galactoptera, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 69 (1909). C. Europe.
143. *H. pubipes*, Loew, Berl. Ent. Zeitschr. Vol. 18, p. 43 (1873); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 139 (1892); Mitteil. Ver. Steiermark, Graz, Vol. 29, p. 90 (1892); Lundbeck, Dipt. Danica, Vol. 3, p. 164, f. 60, 47 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 76 (1910); Verrall, Mag. London, Vol. 48, p. 24 (1912); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 49 (1913). C. Europe.
quadrivittata, Pipping (not Meigen), Not. Sällsk. Fenn. Förh. Helsingfors, Vol. 4, p. 114 (1858); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 159 (1861).
144. *H. pulchripes*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 47, f. 6 (1913). Finland.

145. *H. quadriclavata*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 21 (1899). Spain.
146. *H. quadrifaria*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 416 (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 87 (1892); Wien, Ent. Zeit. Vol. 18, p. 20 (1899); Becker, Zeitsch. Hym. Dipt. Vol. 7, p. 123 (1907); Lundbeck, Dipt. Danica, Vol. 3, p. 153, f. 52 (1910); Collin, Ent. M. Mag. London (2), Vol. 24, p. 106 (1913); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 56 (1913).
var. *longeciliata*, Strobl, Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 309 (1906). Spain.
147. *H. quadripilosa*, Becker, Acta Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 30 (1900). Siberia.
148. *H. quadrivittata*, Meigen, Syst. Besch. Vol. 3, p. 7 (1822); Macquart, Dipt. N. France, Vol. 3, p. 113 (1827); Hist. Nat. Dipt. Vol. 1, p. 342 (1834); Loew, Bemerk. Posen Gegend Art. Zweifl. Gatt. p. 20 (1840); Isis, Vol. 7, p. 546 (1840); Boitard, Man. Ent. Vol. 3, p. 321 (1843); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 51 (1851); Walker, Ins. Brit. Dipt. Vol. 1, p. 100 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 115 (1862); Beling, Arch. Naturg. Berlin, Vol. 48, p. 221 (1882); Verh. Zool.-bot. Wien, Vol. 38, p. 2 (1888); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 142 (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 90 (1892); Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 412 (1900); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 264 (1902); Grünberg, Süßwasserf. Deutschl. 2a, Vol. 1, p. 156 (1910); Lundbeck, Dipt. Danica, Vol. 3, p. 165 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 76 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 27 (3), p. 49 (1913).
intermedia, Fallen, Empid. Succ. p. 23, part. [1816] (*Empis*).
quadri-lineata, Macquart, Mém. Soc. Sc. Lille, p. 162 [1823] (*Empis*).
149. *H. recedens*, Haliday, in Walker, Ins. Brit. Dipt. Vol. 1, p. 101 (1851); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 179 (1892). England.
150. *H. rufipes*, Macquart, Mém. Soc. Sc. Lille, p. 161 [1823] (*Empis*); Dipt. N. France, Vol. 3, p. 114 (1827); Hist. Nat. Dipt. Vol. 1, p. 343 (1834); Meigen, Syst. Besch. Vol. 7, p. 80 (1838). C. Europe.
fulvipes, Macquart, Hist. Nat. Dipt. Vol. 1, p. 342 (1834); Meigen, Syst. Besch. Vol. 7, p. 81 (1838); Boitard, Man. Ent. Vol. 3, p. 321 (1843); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 181 (1892).
151. *H. sartor*, Becker, Berl. Ent. Zeitschr. Vol. 32, p. 7 (1888); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 38, Sitzgsber. p. 97 (1888); Wien. Ent. Zeit. Vol. 11, p. 78 (1892); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 151 (1892); Girschner, Ent. Nachr. Berlin, Vol. 20, p. 61, 241 (1894); Mik, ibidem, Vol. 20, p. 49, 151 (1894); Wien. Ent. Zeit. Vol. 13, p. 197, 273, pl. 2, f. 8, 13 (1894); Progr. Akad. Gymn. Wien, p. 11, f. 8, 13 (1894); Wasmann, Bericht Offenb. Ver. Naturk. Offenbach, Vol. 41, p. 436 (1895). C. Europe, Alps
alpina, Loew, in litt. Osten-Sacken, Ent. Mag. London, Vol. 14, p. 216 (1877); Ent. Nachr. Berlin, Vol. 12, p. 1 (1886).
sartrix, Handlirsch, Verh. Zool.-bot. Ges. Wien, Vol. 39, p. 623 (1889); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 90 (1892).
152. *H. scrobiculata*, Loew, Berl. Ent. Zeitschr. Vol. 17, p. 41 (1873); Kowarz, Verh. Zool.-bot. Ges. Wien, Vol. 23, p. 457 (1873); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 127 (1887); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 130 (1892); Mitteil. Ver. Naturk. Steiermark, Graz, Vol. 29, p. 89 (1892); Becker, Deutsche Ent. Zeitschr. p. 643 (1910); Oldenberg, Arch. Naturg. Berlin, Vol. 81, A (9), p. 169 (1916). C. & S. Europe.
cærulea, Becker, Berl. Ent. Zeitschr. Vol. 31, p. 128 (1887); Oldenberg, Arch. Naturg. Berlin, Vol. 81, A (9), p. 170 (1916).

153. *H. seriata*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 82: Cent. 5, No. 63 (1864); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 268 (1902). E. United States.
154. *H. simplicipes*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 119 (1892). C. Europe.
155. *H. Smithii*, Hutton, Trans. New. Zeal. Inst. Vol. 33, p. 30 [1901] (Empis). New Zealand.
156. *H. spinimana*, Zetterstedt, Fauna Ins. Lappon, p. 556 (1838); Dipt. Scand. Vol. 1, p. 344 (1842); ibidem, Vol. 8, p. 3016 (1849); ibidem, Vol. 11, p. 4269 (1852); Siebke, Nyt Mag. Naturvid. Vol. 14, p. 384 (1866); Wahlgren, Ent. Tidskr. Vol. 31, p. 77 (1910). C. & N. Europe.
- cilipes*, Schiner (not Meigen), Fauna Dipt. Austr. Vol. 1, p. 113 (1862).
var. *spinigera*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 169 (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 91 (1892). C. & N. Europe.
157. *H. striaticollis*, Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 122 (1907). Algeria.
158. *H. strobliana*, Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 142 (1899). S. Europe.
159. *H. sublineata*, Brullé, Expéd. Morée (Zool.), Vol. 3, p. 300 (1832); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 181 (1892). Greece.
160. *H. sulcitaris*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 123 (1892); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 89 (1892). C. Europe.
161. *H. tanychira*, Kowarz, in litt. Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 148 (1892); Lundbeck, Dipt. Dan. Vol. 3, p. 173 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 54 (1913). C. Europe.
- pilipes*, Strobl (not Zetterstedt), Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 147 (1892).
162. *H. tanythrix*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 50, f. 7 (1913). Finland.
163. *H. *tarda*, Meunier, Ann. Sc. Nat. (Zool.), Vol. 7, p. 93, 120, pl. 10, f. 16 (1908). Baltic Amber.
164. *H. tarsata*, Siebke, Nyt Mag. Naturvid. Vol. 12, p. 152 (1864); Cat. Dipt. Nov. p. 27 (1877). N. Europe.
165. *H. tenella*, Fallen, Empid. Succ. p. 25 [1816] (Empis); Meigen, Syst. Besch. Vol. 3, p. 9 (1822); Zetterstedt, Dipt. Scand. Vol. 1, p. 353 (1842); Walker, Ins. Brit. Dipt. Vol. 1, p. 101 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 115 (1862); Neuhaus, Dipt. March. Vol. 71 (1886); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 176 (1892); Grünberg, Süßwasserf. Deutschl. 2a, Vol. 1, p. 156 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 77 (1910). C. & N. Europe.
166. *H. tenuinervis*, Zetterstedt, Fauna Dipt. Lappon, p. 557 (1838); Dipt. Scand. Vol. 1, p. 349 (1842); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 178 (1892); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 57 (1913). N. Europe.
167. *H. ternovensis*, Strobl, Glasnik. Zem. Mus. Bosn. Herceg. Vol. 10, p. 413 (1898); Mitteil. Bosn. Herceg. Vol. 7, p. 572 (1900). S. Europe.
168. *H. testacea*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 82: Cent. 5, No. 64 (1864); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 268 (1902). New Hampshire.
169. *H. tetragramma*, Loew, Berl. Ent. Zeitschr. Vol. 18, p. 43 (1873); Kowarz, Verh. Zool.-bot. Ges. Wien, Vol. 23, p. 457 (1873); Strobl, ibidem, Vol. 42, p. 138 (1892); Lichtwardt, Zeitschr. Hym. Dipt. Vol. 5, p. 310 (1905). C. Europe.
170. *H. thoracica*, Macquart, Dipt. N. France, Vol. 3, p. 115 (1827); Hist. Nat. Dipt. Vol. 1, p. 343 (1834); Meigen, Syst. Besch. Vol. 7, p. 81 (1838); Walker, List Dipt. Brit. Mus. Vol. 3, p. 491 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 52 (1851); Walker,

- Ins. Brit. Dipt. Vol. 1, p. 102 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 116 (1862); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 92 (1892); ibidem, Vol. 46, p. 71 (1909); Boitard, Man. Ent. Vol. 3, p. 321 (1843).
- ? *ferruginea*, Roser, Correspondenzblad Landw. Ver. Würtemb. Stuttgart, Vol. 1, p. 53 (1840).
- ? *melanocephala*, Macquart, Mém. Soc. Sc. Lille, 1823, p. 161 [1823] (*Empis*).
- magica*, Mik, Wien. Ent. Zeit, Vol. 6, p. 100 (1887); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 175 (1892).
171. *H. Tieffi*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 150 (1892); C. Europe.
Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 90 (1892).
172. *H. transfuga*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 491 (1849); Boreal America.
Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 411 (1900); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 270 (1902).
173. *H. tristis*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 82 : Cent. 5, No. 62 New Hampshire.
(1864); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 267 (1902); Slosson, Ent. News, Philad. Vol. 14, p. 286 (1903).
174. *H. trivittata*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 204 : Cent. 3, No. 39 United States.
(1862); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 200, 265 (1902); Slosson, Ent. News, Philad. Vol. 14, p. 268 [1903] (*habits*); McAtee, Ent. News, Philad. Vol. 20, p. 360 [1909] (*habits*).
175. *H. tyrolensis*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 42, p. 121 (1892). C. Europe.
176. *H. umbrosa*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 202 : Cent. 3, No. 34 E. United States.
(1862); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 264 et 350 (1902).
brachystoma, Coquillett, Rept. New Jersey Board Agric. Vol. 29, Suppl. p. 652 [1899] (*Empis*) no description; Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 350 (1902).
177. *H. unicauda*, Bezzi, Suppl. Ent. Berlin, Vol. 3, p. 72 (1914). Formosa.
178. *H. unicolor*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 203 : Cent. 3, No. 37 E. United States.
(1862); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 265 (1902).
179. *H. velutina*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 203 : Cent. 3, No. 36 E. United States.
(1862); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 394 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 264 (1902).
180. *H. Wheeleri*, Melander, Psyche, Vol. 9, p. 214 (1901); Trans. Amer. Wyoming.
Ent. Soc. Vol. 28, p. 270, f. 95 (1902).

16. GENUS PHLEBOCTENA, BEZZI

Phleboctena, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302, 382 (1909).

Characters. — Yellow species, measuring six millimeters, with stout thorax and short abdomen. Eyes separated on the front a distance equal to the length of the first antennal joint, two ocellar bristles; antennæ elongate, almost bare. third joint long and compressed conical, terminal style two-thirds the length of the third joint, distinctly two-jointed, the basal joint quadrate, the long terminal joint tipped by a microscopic seta; proboscis thick, vertical, as long as the head; palpi long, thin, porrect and finely hairy. Disk of the thorax with very short hairs, notopleural, postalar, single dorsocentral and four scutellar bristles long, no strong humerals, pleuræ bare. Genitalia retracted, finely golden-hairy. Legs simple, with very short hairs, only the coxæ and posterior femora and tibiæ bearing short black bristles. Wings long and broad, costa thinned beyond the third vein, basal bristle present, auxiliary

vein abbreviated, first vein distinctly and closely setulose on its entire length except at extreme base, third vein forked, the anterior branch almost parallel with the axis, the posterior branch bent backward to terminate at the wing-tip, discal cell large, as long as the first basal cell, anal vein obsolete, anal angle well developed, no alula.

Type species : *P. lutea*, Bezzi. Dr. Bezzi has forwarded the only known specimen which has served to check the preceding description and to make possible the accompanying illustration.

Geographical distribution.

1. *P. lutea*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 382, f. 7, 8 Chile.
(1909). — Pl. 2, Fig. 15.

17. GENUS HILAREMPIS, BEZZI

Hilarempis, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 443 (1905); Melander, Williston's Man. N. Amer. Dipt. Vol. 226 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302, 362 (1909); Kertész, Cat. Dipt. Vol. 6, p. 82 (1909).

Heterempis, Brethes, Ann. Mus. Hist. Nat. Buenos Aires, Vol. 19, p. 92 (1909); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 362, note (1909).

Hilaropus, White, Proc. R. Soc. Tasmania, 1916, p. 226 (1917).

Characters. — Opaque blackish species. Head globose, eyes of both male and female widely separated, face quadrate, hairy or bare, lower occiput hairy, upper occiput more bristly; antennæ shorter than the head, located near the middle, distinctly three-jointed, the basal joints not setose, the third joint conical with a short terminal style which is tipped by a small bristle; proboscis not longer than the head, rather strong but slender, vertical, palpi thickened, cylindrical, projecting forward but curving upward, setose beneath. Discal bristles of the thorax small, one humeral, three prominent notopleurals, the acrostichals minute, arranged in two approximate or several rows, dorsocentrals small, scutellum margined with a variable number of bristles ranging from six to fourteen; pleuræ bare. Abdomen with long loose hair, base of the second segment marked with two rows of pittings; pygidium usually strongly compressed and thrown forward over the abdomen, penis hidden. Legs not bristly, front tibiæ and metatarsi of the male sometimes shaggy, hind femora not thickened nor the hind tibiæ shortened, front metatarsi of male often enlarged as in *Hilara*. Costa extending around the entire wing although sometimes thinner on the hind margin, anal angle broadly rounded, auxiliary vein straight, vanishing at the end, first vein swollen at the tip, upper branch of the third vein short, anal cell narrow, anal vein detached from the underside of the anal cell.

Type species : *H. nudifacies*, Bezzi (Pl. 6, Fig. 54), by present designation. The genus is subtropical in its distribution.

Geographical distribution.

1. *H. argentifera*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 365, 371 Chile.
(1909).
2. *H. argentula*, Becker, Mission Arc Méridien Amér. Sud, Vol. 10, p. 169 Ecuador.
(1919).
3. *H. argyrozona*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 761 Chile.
[1865] (?*Hilara*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 458 (1905);
Nova Acta Akad. Naturf. Halle, Vol. 91, p. 363 (1909).
4. *H. barbatula*, Bezzi, ibidem, Vol. 91, p. 365, 371 (1909). Peru.

5. *H. Benhami*, Miller, Trans. New Zeal. Inst. Vol. 45, p. 198, f. 1, 5 [1913] New Zealand.
(*Hilara*).
6. *H. bicingulata*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 16, p. 364, 367 (1909). Chile.
7. *H. brachyrrhyncha*, Thomsen, Eugen. Resa, Dipt. p. 474 [1869] (*Hilara*); Patagonia.
Bezzi, Ann. Mus. Hungar. Vol. 3, p. 444, 458 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 364 (1909).
8. *H. brachystoma*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 755 Chile.
[1865] (*Empis*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448 [1905] (*Haplomera*); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 364, 373 (1909).
9. *H. carinata*, Bezzi, ibidem, Vol. 91, p. 363, 369 (1909). Bolivia.
10. *H. ?cervina*, Loew, Oefv. Vet. Akad. Förh. Stockholm, Vol. 14, p. 370 S. Africa.
[1857] (*Hilara*); Dipterenf. Südaf. Vol. 1, p. 267 [1860] (*Hilara*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 443 (1905).
11. *H. cyanescens*, Bezzi, ibidem, Vol. 2, p. 342 [1904] (*Empis*); Vol. 3, p. 443 New South Wales.
(1905).
12. *H. dumicola*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 756 [1865] Chile.
(*Empis*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 444, 458 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 364 (1909).
13. *H. echinata*, White, Proc. Roy. Soc. Tasmania, 1916, p. 230 [1917] Tasmania.
(*Hilaropus*).
14. *H. elegans*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 364, 368 Peru.
(1909).
15. *H. fulva*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 765 [1865] Chile.
(*Empis*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 444, 458 (1905).
Philippii, Bezzi (new name for *Empis fulva* Philippi, not Macquart nor Walker), Nova Acta Akad. Naturf. Halle, Vol. 91, p. 363 (1909).
16. *H. fulvipes*, Hutton, Trans. New Zeal. Inst. Vol. 33, p. 31 [1901] (*Hilara*). New Zealand.
Huttoni, Bezzi (new name for *Hilara fulvipes* Hutton, not Macquart), Ann. Mus. Hungar. Vol. 2, p. 360 (1904).
17. *H. griseiventris*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 761 Chile.
[1865] (*Hilara*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 458 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 365 (1909).
18. *H. gymnaspis*, Bezzi, ibidem, Vol. 91, p. 365, 370 (1909). Peru.
19. *H. ?heterogastra*, Loew, Vet. Akad. Förh. Stockholm, Vol. 14, p. 370 S. Africa.
[1858] (*Hilara*); Dipterenf. Südaf. Vol. 1, p. 268 [1860] (*Hilara*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 443 (1905).
20. *H. hilaraformis*, Bezzi, ibidem, Vol. 2, p. 240 [1904] (*Empis*); ibidem, Australia.
Vol. 3, p. 443 (1905).
21. *H. holosericea*, Thomsen, Eugen. Resa, Dipt. p. 473 [1869] (*Hilara*); Bezzi, Patagonia.
Ann. Mus. Hungar. Vol. 3, p. 444, 458 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 364 (1909).
22. *H. kaiteriensis*, Miller, Trans. New Zeal. Inst. Vol. 45, p. 200, f. 6-8 New Zealand.
[1913] (*Hilara*).
23. *H. laticornis*, Bigot, Mission Sc. Cap Horn, Zool. Vol. 6, p. 20 [1888] Cape Horn.
(*Hilara*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 444, 458 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 364 (1909).
24. *H. macrocera*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 128 [1889] Chile.
(*Hilara*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 444, 458 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 365 (1909).
25. *H. magellanica*, Bigot, Mission Sc. Cap Horn, Zool. Vol. 6, p. 20 [1888] Cape Horn.
(*Hilara*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 444, 458 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 364 (1909); Enderlein, Vet. Akad. Handl. Stockholm, Vol. 47 (3) 103 (1912).

26. *H. mendozaana*, Brèthes, An. Mus. Hist. Nat. Buenos Aires, Vol. 19, p. 92, Argentina.
fig. [1909] (*Heterempis*).
27. *H. nigrimana*, White, Proc. Roy. Soc. Tasmania, 1916, p. 228 [1917] Tasmania.
(*Hilaropus*).
28. *H. nudifacies*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 446 (1905); Nova Peru.
Acta Akad. Naturf. Halle, Vol. 91, p. 364 (1909). — **Pl. 6, Fig. 54.**
29. *H. ochracea*, Bigot, Mission Sc. Cap Horn, Zool. Vol. 6, p. 22, pl. 3, f. 4 Cape Horn.
[1888] (*Heleodromia*); Ann. Soc. Ent. France (6), Vol. 8, Bull. p. XXX
[1888] (*Hilara*); Bull. Soc. Zool. France, Vol. 13, p. 101 [1888]
(*Hilara*); Wien. Ent. Zeit. Vol. 7, p. 109 [1888] (*Hilara*); Ann. Soc.
Ent. France (6), Vol. 9, p. 113 [1889] (*Hilara*); Bezzi, Ann. Mus.
Hungar. Vol. 3, p. 444, 458 (1905); Nova Acta Akad. Naturf. Halle,
Vol. 91, p. 363 (1909).
30. *H. pallida*, Philippi, Zool.-bot. Ges. Wien, Vol. 15, p. 761 [1865] Chile.
(? *Hilara*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 458 (1905); Nova
Acta Akad. Naturf. Halle, Vol. 91, p. 363 (1909).
31. *H. pallidifurca*, White, Proc. Roy. Soc. Tasmania, 1916, p. 227 [1917] Tasmania.
(*Hilaropus*).
32. *H. peregrina*, White, ibidem, p. 228, f. 43 [1917] (*Hilaropus*). Tasmania.
33. *H. Philpotti*, Miller, Trans. New Zeal. Inst. Vol. 45, p. 202, f. 10 [1913] New Zealand.
(*Hilara*).
34. *H. polychata*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 445 (1905); Nova Acta Peru.
Akad. Naturf. Halle, Vol. 91, p. 365 (1909).
35. *H. quadrifaria*, Becker, Mission Arc Méridien Amér. Sud, Vol. 10, p. 169 Ecuador.
(1919).
36. *H. ? sordida*, Loew, Oefv. Vet. Akad. Förh. Stockholm, Vol. 15, p. 340 S. Africa.
[1858] (*Hilara*); Dipterenf. Südafr. Vol. 1, p. 267, pl. 2, f. 51 [1860]
(*Hilara*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 443 (1905).
37. *H. spinosa*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 363, 365 Chile.
(1909).
38. *H. spinulosa*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 757 [1865] Chile.
(*Empis*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 444 (1905); Nova
Acta Akad. Naturf. Halle, Vol. 91, p. 363, 365 (1909).
39. *H. tephrodes*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 755 [1865] Chile.
(*Empis*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 444, 458 (1905); Nova
Acta Akad. Naturf. Halle, Vol. 91, p. 365 (1909).
40. *H. vanellus*, Schiner, Novara Reise, Dipt. p. 206 [1868] (*Hilara*); Bezzi, Colombia.
Ann. Mus. Hungar. Vol. 3, p. 444, 458 (1905); Nova Acta Akad.
Naturf. Halle, Vol. 91, p. 364 (1909).
41. *H. xanthocera*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 444 (1905); Nova Peru.
Acta Akad. Naturf. Halle, Vol. 91, p. 364, 367 (1909).

18. GENUS HAPLOMERA, MACQUART

- Haplomera**, Macquart, Dipt. Exot. Vol. 1, 2, p. 279 or 163 [1838] (*Aplomera*); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 561 [1857] (*Aplomera*); Scudder, Nomencl. Univ. Index, p. 141 (1884); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 119 [1889] (*Aplomera*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448 (1905); Melander, Williston's Man. N. Amer. Dipt. p. 226 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302, 372 (1909); Kertész, Cat. Dipt. Vol. 6, p. 83 (1909).
- Anodontina**, Macquart, Dipt. Exot. Vol. 1, Pt. 2, pl. 13, f. 4 (1838) figure only.

Characters. — Opaque blackish species with robust hind legs. Head globose, eyes of both sexes widely separated, face vertically oblong, with sparse lateral hairs, occiput with few hairs; antennæ as long as the head or longer, located above the middle, basal joint with short fine setæ, third joint much lengthened, narrow, gradually tapering, ending in a short style which is tipped with a small bristle; proboscis about as long as the head, vertical, palpi porrect, rather long, cylindrical, curving upward, pilose and hairy. Bristles of the thorax weak, no humeral, about three notopleurals, acrostichal setulæ very short, biseriate but the rows distant, dorsocentral setulæ numerous and short, lateral setulæ sparse but evident, scutellum with several variable bristles; pleuræ bare. Abdomen of female often blunt and with the terminal segments retracted, pits of the second segment small; epipygium with compressed ventral keel, all its valves acute. Legs bare of bristles or nearly so, front coxæ rather lengthened, hind femora lengthened and thickened, sometimes thorny beneath, hind tibiæ shortened, sometimes geniculate next to the knee. Costa enclosing the entire wing, anal angle broadly rounded, not prominent, no basal bristle, auxiliary vein evanescent at the end, fork of the third vein short and oblique, anal vein reaching halfway along the narrow anal cell, anal vein rather more distinct than usual, almost attaining the margin, detached from the anal cell, no alula.

Type species : *H. Gayi*, Macquart, the original species.

Geographical distribution. — The distribution of *Haplomera* is subtropical, all of the species known coming from South America.

1. *H. argentata*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 758 [1865] Chile.
(*Pachymeria*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448 (1905);
Nova Acta Akad. Naturf. Halle, Vol. 91, p. 373 (1909).
2. *H. brachygastera*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 759 Chile.
[1865] (*Pachymeria*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448
(1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 374 (1909).
3. *H. chilensis*, Bezzi, ibidem, Vol. 91, p. 374 (1909). Chile.
4. *H. fulvipes*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 760 [1865] Chile.
(*Pachymeria*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448 (1905);
Nova Acta Akad. Naturf. Halle, Vol. 91, p. 374 (1909).
5. *H. Gayi*, Macquart, Dipt. Exot. Vol. 1, p. 279 (*Aplomera*), pl. 13, f. 4 Chile.
[1838] (*Anodontina*); Blanchard, Gay, Hist. Chile (Zool.), Vol. 7,
p. 374 [1852] (*Aplomera*); Philippi, Verh. Zool.-bot. Ges. Wien,
Vol. 15, p. 758 [1865] (*Aplomera*); Bezzi, Ann. Mus. Hungar. Vol. 3,
p. 458 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 373 (1909).
6. *H. gymnopoda*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448 (1905); Nova Peru.
Acta Akad. Naturf. Halle, Vol. 91, p. 374 (1909). — **Pl. 6, Fig. 58.**
7. *H. modesta*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 759 [1865] Chili.
(*Pachymeria*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448 (1905); Nova
Acta Akad. Naturf. Halle, Vol. 91, p. 373 (1909).
8. *H. notogramma*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 449 (1905); Nova Bolivia.
Acta Akad. Naturf. Halle, Vol. 91, p. 374 (1909).
9. *H. nudipes*, Macquart, Dipt. Exot. Vol. 1, p. 277, pl. 13, f. 2 [1838] (*Empis*); Chile.
Blanchard, Gay, Hist. Chile (Zool.), Vol. 7, p. 373 [1852] (*Empis*);
Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 753 [1865] (*Empis*);
Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 373 (1909).
10. *H. obscurata*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 759 [1865] Chile.
(*Pachymeria*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448 (1905); Nova
Acta Akad. Naturf. Halle, Vol. 91, p. 373 (1909).
11. *H. obscuripennis*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 759 Chile.
[1865] (*Pachymeria*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448
(1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 373 (1909).

12. *H. rubripes*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 760 [1865] Chile.
 (*Pachymeria*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 448 (1905);
 Nova Acta Akad. Naturf. Halle, Vol. 91, p. 373 (1909).
13. *H. Schrottkyi*, Bezzi, Wien. Ent. Zeit. Vol. 28, p. 319, fig. (1909). Paraguay.
14. *H. Verasi*, Brèthes, Rev. Chilena, Hist. Nat. Vol. 20, p. 79 (1916). Chile.

19. GENUS DEUTERAGONISTA, PHILIPPI

Deuteragonista, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 770 (1865); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 121 (1889).

Amictoides, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302, 380 (1910).

Characters. — Short robust reddish species, measuring about five millimeters in length, resembling the bombyliid genus *Amictus* in appearance. Eyes of the male contiguous half-way between the antennæ and the ocelli, ocellar triangle large; basal joints of the antennæ nearly bare, the third joint long and conical, about three times as long as broad, the apical style half the length of the third joint, distinctly two-segmented and with short end-bristle, the basal segment about one-fourth as long as the apical; proboscis vertical, as long as the head, palpi curved and with a few fine hairs. Thoracic bristles black, no strong humeral, acrostichals short and arranged in several rows, anterior dorsocentrals short, hair-like and scattered, the middle ones longer and seriate, the posterior three long and bristle-like, notopleural bristles strong, two long and two short scutellars; pleuræ bare. Abdomen short, pygidium small, erect and closed, middle valve large, central piece compressed below. Legs simple, hairs short and fine, tibiae with rather distinct extensor bristles, front metatarsi of the male somewhat thickened. Costa greatly thinned beyond the third vein, basal bristle present, auxiliary vein stopping before the costa, no stigma, fork of third vein moderately short, discal cell not large, as long as first basal cell, anal vein obsolete, anal angle well developed, axillary incision distinct, no alula.

Type species: *D. bicolor*, Philippi. This genus was located near *Thereva* by Philippi. Bezzi erected the genus *Amictoides* on *Hilara* (?) *breviventris* Philippi, stating in a footnote that it differed only in the structure of the antennal style. Dr. Bezzi has loaned his single specimen of *breviventris*, which has furnished the basis for the preceding description and the accompanying illustration. This specimen has the style exactly as described by Philippi for *Deuteragonista*, and agrees in all points with the rest of Philippi's description of the genus. Philippi separated widely the species *bicolor* and *breviventris* in his paper on Chilean diptera, and it may be that the two forms are entirely distinct. In the meantime, as we have no specimens of *bicolor* for comparison, we have no basis for segregating the two.

Geographical distribution.

1. *D. bicolor*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 771, f. 49 Chile.
 (1865).
2. *D. breviventris*, Philippi, ibidem. Vol. 15, p. 762 [1865] (? *Hilara*); Bezzi, Chile.
 Ann. Mus. Hungar. Vol. 3, p. 444 [1905] (*Apalocnemis*); Nova Acta
 Akad. Naturf. Halle, Vol. 91, p. 380 [1909] (*Amictoides*). — Pl. 2,
 Fig. 14.

20. GENUS TOREUS, MELANDER

Toreus, Melander, Ent. News Philad. Vol. 17, p. 376 (1906); Williston's N. Amer. Dipt. Man. p. 226 (1908); Kertész, Cat. Dipt. Vol. 6, p. 80 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 615 (1910).

Characters. — Rather large, brownish, entirely pollinose bristleless species with yellow legs. Eyes broadly separated, bare, the lower anterior facets of the male large; antennæ inserted below the middle of the head, nearly bare, the basal joints subequal, the third joint elongate, cylindrical at the bases and bluntly conical at the apex, terminated by a thickened two-jointed style the outer segment of which is short and bristle-like; proboscis three times as long as the head, rigid, directed somewhat forward, the labrum three-fifths as long as the labella, the two-jointed palpi short, narrow, flattened and incumbent; ocelli large, not raised, ocellar and vertical hairs reduced to microscopic size. Thorax moderately stout, entirely without bristles, no metapleural setæ. Abdomen robust, cylindrical, twice as long as the thorax, nearly bare, no pittings, six segments visible anterior to the epipygium, the seventh sternite forming a flattened peduncle bearing the pygidium, which comprises a pair of upright pointed lateral valves, a pair of flattened dorsal decussating filaments, a pair of basal long slender diverging filaments and a hooked downward-pointed penis. Legs entirely devoid of bristles, simple except that the hind femora and tibiæ of the male are bent, pulvilli small. Wings rather broad, anal angle broadly rounded, costa extending around the entire wing, no basal bristle, auxiliary vein distinct except at the tip, straight, the other veins reaching the margin, third vein forked, basal cells long, equal in length, discal cell rather narrow, blunt, sections of the fourth vein proportioned 0.8 : 0.2 : 1 : 1.2, of the fifth vein 1.1 : 0.3 : 1 : 1, anal crossvein abruptly reflexed and fused with the underside of the anal cell, anal vein represented by a faint fold, no alula, alular fringe very weak, calypteres with a straight edge and with weak hairs.

Type species: *T. neomexicanus*, by original designation.

Geographical distribution.

1. *T. neomexicanus*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 352 [1902] New Mexico. (*Empis*); Ent. News, Philad. Vol. 17, p. 377, fig. (1906).

21. GENUS TENONTOMYIA, WHITE

Tenontomyia, White, Papers, Proc. Roy. Soc. Tasmania, 1916, p. 236 (1917).

Characters. — Head a little narrower than the thorax; eyes separated in both sexes; proboscis thick, a little shorter than height of the head and bearing long hairs, palpi not distinguishable; antennæ with basal joints extremely small, the third expanded, nearly oval in shape and drawn out at the apex into a narrow point, from which springs a long aristiform style which is about twice as long as the three antennal joints together. Thorax considerably arched, devoid of pubescence, two rows of fairly long dorsocentrals, lateral bristles long, four scutellars. Abdomen with a few short lateral bristles on hind margins; genitalia of male narrow but lengthened. Legs long, particularly the hind pair, and very slender, all joints simple and practically bare. Wings of medium size, auxiliary vein straight and apparently becoming coalescent with the first vein; third vein with perpendicular fork which closes the first submarginal cell before the apex of the marginal cell, discal cell somewhat triangular, with three complete posterior veins, stigma weak.

Genotype: *T. gracilipes*, White, the only known species. This is a brownish insect 5.5 mm. in length that has been taken a number of times in Tasmania. White described the third vein as simple, designating the anterior fork as a crossvein. The conformation suggests *Blepharoprocta* or *Empis clausa*, where the submarginal cell is closed by what is unquestionably the anterior fork of the third vein.

Geographical distribution.

1. *T. gracilipes*, White, Papers, Proc. Roy. Soc. Tasmania, 1916, p. 237, Tasmania. f. 45 (1917). — Pl. 8, Fig. 83.

22. GENUS ATRICHOPLEURA, BEZZI

Atrichopleura, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302, 357 (1910).

Characters. — Slender or robust blackish species, two to four millimeters in length. Head globular, the antennæ inserted near the middle of the head, eyes of both sexes widely separated, bare, the facets not enlarged, marginal incision at the antennæ deep, ocellar triangle not elevated, ocellar bristles long and divergent, several diverging fronto-orbitals, face quadrate, sometimes bearing hairs; antennæ rather shorter than the head, basal joints subequal, more or less globular, not setose, the third joint narrowly conical, with a thickened terminal style shorter than the third joint and not geniculate at the short basal section; proboscis about as long as the head, projecting obliquely forward, labrum shorter than the labium, the labellar flaps broad, palpi long, cylindrical, up-turned, with a few long hairs. Thorax small, bristles weak or strong, one humeral and one posthumeral, the anterior dorsocentrals weak and numerous, several scutellaræ, the acrostichals weak and biseriate; pleuræ entirely bare. Abdomen typically slender, twice as long as the thorax, with weak hairs; pygidium typically rather small, closed, no projecting valves, penis filiform; abdomen of the female tapering. Legs simple, of the female without bristles, of the male the anterior tibiæ sometimes densely pubescent. Wings long and narrow or short and broad, the costa encompassing the entire margin, auxiliary vein straight, distinct, not meeting the costa, third vein simple, anal vein obsolescent, no alula, typically the anal angle broadly rounded and the anal crossvein abruptly and greatly reflexed, parallel with the axis of the wing.

Type species: *A. Schnensei* (Pl. 6, Fig. 60), by Bezzi's designation. The genus *Atrichopleura* is a composite which ultimately will probably be subdivided. The species *nitida* has the habitus of *Hilara*, *crassa* resembles *Schistostoma*, while *Schnensei* and *hirtipes* are slender insects with long narrow wings and more or less hairy face. The genus appears to be restricted to South America.

Geographical distribution.

1. *A. argyrivertris*, Becker, Mission Arc Méridien Amér. Sud, Vol. 10, p. 171 Ecuador.
(1919).
2. *A. crassa*, Bezzi, Nova Acta Acad. Naturf. Halle, Vol. 91, p. 359 (1910). Chile.
3. *A. hirtipes*, Bezzi, ibidem, Vol. 91, p. 361 (1910). Peru.
4. *A. nitida*, Bezzi, ibidem, Vol. 91, p. 358. Peru.
5. *A. Schnensei*, Bezzi, ibidem, Vol. 91, p. 362 (1910). — Pl. 6, Fig. 60. Peru.
6. *A. lephrodes*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 760 [1865] Chile.
(*Rhamphomyia*); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91,
p. 323 [1910] (? *Rhamphomyia*).

23. GENUS OPEATOCERATA, NOV. GEN.

Characters. — Small, polished yellow species suggestive of *Leptopeza*, measuring about three millimeters in length. Antennæ inserted below the middle of the head, joints small, slightly pubescent, the third joint short-ovate, tipped with a lengthened two-pieced arista three times the length of the third joint, of which the basal part is two-thirds the length of the third antennal joint and appears like a prong-like extension of that joint; proboscis inflexed, slender, slightly longer than the head-height. Thorax strongly convex, bristles very delicate and yellow, no pubescence, dorsocentrals uniseriate, no acrostichals, humeral, posthumeral, notopleural or presutural setæ, two supra-alars, two parallel scutellaræ; propleuræ bare, a row of long delicate metapleural hairs, prothoracic spiracle concolorous,

metathoracic spiracle brown. Abdomen (♀) with nine segments, the eighth lengthened and compressed, styles long and narrow, abdominal hairs very sparse. Legs long, slender, hairy, hind tibiæ and metatarsi with long delicate extensor setæ. Wings more or less cuneiform in outline, costa stopping at apex, first vein ending near basal two-fifths of wing, auxiliary vein straight, evanescent apically, stigma strong, third vein ending at wing-tip, its anterior branch erect, submarginal cells wide, basal cells much shorter than the discal, fourth and intercalary veins evanescent apically, anal crossvein abruptly reflexed, in line with the outward continuation of the cubitus, only the base of the anal vein indicated, axillary incision weak, shallow; calypteres with a few long hairs.

Genotype : *Empis rubida*, Wheeler & Melander. This species was originally described from Mexico. Bezzi has recorded it from Bolivia. Pablo Schild has taken it in Costa Rica. The peculiar antennæ can well remove this form from the complex genus *Empis*. The genus is a likely ancestor to *Lamprempis*.

Geographical distribution.

1. *O. rubida*, Wheeler & Melander, Biol. Centr. Amer. Dipt. Vol. 1, p. 368 Mexico, Bolivia. [1901] (*Empis*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 302, f. 121 [1902] (*Empis*); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 343, 348 [1909] (*Empis*); Deut. Ent. Zeitschr. Beiheft, p. 89 [1909] (*Empis*).

24. GENUS LAMPREMPIS, WHEELER & MELANDER

Lamprempis, Wheeler & Melander, Biol. Centr. Dipt. Suppl. p. 366 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 278 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 252, 263 (1903); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434 (1905); Melander, Williston, N. Amer. Dipt. Man. p. 225 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302, 340 (1909); Kertész, Cat. Dipt. Vol. 6, p. 38 (1909); Coquillett, Proc. U. S. Not. Mus. Vol. 37, p. 557 (1910).

Characters. — Brilliant metallic, blue or green or polished black species with elongate antennæ and erect fork of the third vein. Head longer than broad, placed low down on the thorax, eyes of the male contiguous above the antennæ, the upper facets enlarged, eyes bare, marginal excision at the antennæ very shallow and broad; face with parallel sides, usually shining, of the male rather narrow, of the female moderate, no cheeks; antennæ inserted well above the middle of the head, porrect, the first joint elongate cylindrical, more than twice as long as the second, and abundantly hairy; proboscis longer than the head, vertical, slender, the lobes of the labella long and very narrow; ocellar triangle hairy, raised in the male, occipital hairs abundant. Thorax very greatly hunchbacked, especially in front, devoid of strong bristles, but densely pilose, several weak but long notopleurals and scutellars; pleuræ partly pollinose, with a series of many long strong metapleural hairs, pectus with some long hairs. Abdomen less abundantly furnished with hairs; pygidium of moderate size, lateral valves broad at the apex, penis short and thick; abdomen of the female flattened, the terminal segments retractile into the fifth. Legs rather stout, strongly hairy, the hind pair largest, front metatarsi frequently swollen, hind femora, tibiæ and metatarsi of the male sometimes furnished with apophyses or groups of hairs, or they may become pennate with flat scales, posterior legs of the female often strongly compressed and feathered with scale-like hairs. Wings sometimes pictured, usually clear hyaline or with brownish tinge, rather pointed, the costal edge straight, costal hairs microscopic, no basal bristle, costa stopping at the third vein, auxiliary vein straight and distinct, almost attaining the costa, third

vein abruptly forked, fourth vein usually weak and sinuous, the first posterior cell widened before its apex, discal cell small, no longer than the equal basals, anal cell short, the crossvein abruptly reflexed and fusing with the under side of the anal cell, the anal vein faint but almost complete, alula distinct but not margined, finely fringed, base of the second anal vein very strong; calypteres with short fringe.

Type species: *L. chichimeca*, Wheeler & Melander (Pl. 2, Fig. 13), so designated by Coquillett in 1903. *Lamprempis* was first proposed as a subgenus of *Empis*, but the species are so highly specialized and distinctive that the group deserves generic rank. Bezzi (1909) has given a table of the known species, all of which are restricted to tropical and subtropical America.

Geographical distribution.

1. *L. benigna*, Osten-Sacken, Biol. Centr. Amer. Dipt. Vol. 1, p. 215 [1887] Mexico.
(*Empis*); Wheeler & Melander, Biol. Centr. Amer. Dipt. Suppl. p. 367 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 281 (1902); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle. Vol. 91, p. 341, 342 (1909).
2. *L. calopoda*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 436 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 341 (1909). Peru.
3. *L. chichimeca*, Wheeler & Melander, Biol. Centr. Amer. Dipt. Suppl. p. 368 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 280, f. 100-102 (1902); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 341 (1909). Mexico.
4. *L. Columbi*, Schiner, Novara Reise, Dipt. p. 205 [1868] (*Empis*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 457 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 340 (1909). Colombia.
5. *L. cyanea*, Bellardi, Ditt. Messic. Vol. 2, p. 98 [1861] (*Empis*); Wheeler & Melander, Biol. Centr. Amer. Dipt. Suppl. p. 367 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 279 (1902); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 341 (1909). Mexico.
6. *L. diaphorina*, Osten-Sacken, Biol. Centr. Amer. Dipt. Vol. 1, p. 215 [1887] (*Empis*); Wheeler & Melander, Biol. Centr. Amer. Dipt. Suppl. Vol. 1, p. 367 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 281 (1902); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 341 (1909). Mexico.
7. *L. dolichopodina*, Schiner, Novara Reise, Dipt. p. 205 [1868] (*Empis*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 341 (1909). South America.
8. *L. gemma*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 438 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 342 (1909). Bolivia.
9. *L. setigera*, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 272 (1903); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 341 (1909). Cuba.
10. *L. suavis*, Loew, Berl. Ent. Zeitschr. Vol. 13, p. 33 : Cent. 8, No. 56 [1869] (*Empis*); Wheeler & Melander, Biol. Centr. Amer. Dipt. Suppl. p. 368 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 280 (1902); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 342 (1909). Mexico, Bolivia.
11. *L. superba*, Loew, Wien. Ent. Monatschr. Vol. 5, p. 36 [1861] (*Empis*); Berl. Ent. Zeitschr. Vol. 13, p. 34 : Cent. 8, No. 57 [1869] (*Empis*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 279 (1902); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle, p. 91, p. 340 (1909). Cuba.

12. *L. tuberifera*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 435, f. 1 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 340 (1909). Peru.
13. *L. violacea*, Loew, Berl. Ent. Zeitschr. Vol. 13, p. 32 : Cent. 8, No. 55 [1869] (*Empis*); Wheeler & Melander, Biol. Centr. Amer. Dipt. Suppl. p. 367 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 278, pl. 8, f. 103, 104 (1902); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 340 (1909). Mexico.
14. *L. viridis*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 395 [1895] (*Hilara*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 269 [1902] (*Hilara*); Cockerell, Ent. News Philad. Vol. 36, p. 49 (1903); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 434, 459 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 341 (1909). Jamaica.

25. GENUS PORPHYROCHROA, NOV. GEN.

Characters. — Metallic steel-blue slender species, with long yellow legs. Eyes large, bare, facets uniform, the emargination at antennæ short and narrow; front very narrow, sides parallel, vertex filled by the ocellar triangle, face almost obliterated, only a linear indication at the oral edge; antennæ located well up on the head, the front being half as long as the face, long and slender, basal joints shining, the first joint cylindrical with apical setulæ, the second joint pyriform and loosely setulose, the third joint velvety, long conical, narrow, only a little tapering, indistinctly ending in a long thick cylindrical style which is nearly as long as the remainder of the antenna, its outer third a more slender segment; proboscis slender, pointed, rigid, thick only at extreme base where the labella is developed into lateral flaps; palpi minute, visible only as a black point; two erect parallel proclinate vertical bristles, one pair of proclinate ocellar, two frontal bristles arranged one before the other. Thorax not pubescent, five reclinate dorsocentral bristles then an interruption to the proclinate prescutellar pair, no acrostichals, one humeral, two or three supraalar setulæ, four scutellar bristles, metapleuræ with a few setulæ. Abdomen depressed, sparsely hairy; pygidium terminal, penis thick but visible at base only, middle valves large. Legs simple, slender, hairy, middle tibiæ with two apical bristles, hind tibiæ with terminal pecten. Wings with strong anal angle, no costal bristle, costa abruptly interrupted beyond third vein, a crease in the membrane beneath the humeral crossvein, auxiliary vein almost contiguous with first vein, evanescent at middle of costal cell, anal crossvein recurved, forming an angle of 140 degrees with anal vein which passes into a fold beyond anal cell, marginal cilia of two lengths, some shorter and some longer than the anterior crossvein which is located well toward the base of the complete discal cell, three complete veins issuing from the discal cell of which the anterior two are weak; calypteres with long cilia.

Type species: *P. palliata*, Coquillett. This was originally described as belonging to *Sciodromia*. Later Coquillett referred the species to *Microphorus*. The genus is much more closely related to *Rhamphomyia* than to either of these, but differs in the high-placed antennæ with lengthened first joint and arista. Other tropical species of *Rhamphomyia* resemble *palliata* in possessing metallic coloration. The description and the figure of the genus were obtained from the type specimen in the U. S. National Museum.

Geographical distribution.

1. *P. palliata*, Coquillett, Jour. New York Ent. Soc. Vol. 10, p. 140 [1902] Mexico. (*Sciodromia*); Proc. Ent. Soc. Wash. Vol. 5, p. 264 [1903] (*Microphorus*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 460 [1905] (*Microphorus*).
— Pl. 2, Fig. 12.

26. GENUS EMPIS, LINNÆUS

- Empis**, Linnæus, Syst. Nat. Ed. 10, p. 603 (1758); Fauna Suec. p. 466 (1763); Latreille, Consid. Gen. p. 443 (1810); Meigen, Syst. Besch. Vol. 3, p. 15 (1822); Macquart, Mém. Soc. Sc. Lille, 1823, p. 156 (1823); Curtis, Brit. Ent. Vol. 8, p. 18 (1824); Macquart, Dipt. N. France, Vol. 3, p. 115 (1827); Hist. Nat. Dipt. Vol. 1, p. 327 (1834); Zetterstedt, Fauna Ins. Lappon. p. 560 (1838); Westwood, Gen. Syn. p. 131 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 367 (1842); Boitard, Man. Ent. Vol. 3, p. 317 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 89 (1852); Rondani, Dipt. Ital. Vol. 1, p. 151 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 561 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 102 (1862); Lioy, Atti Inst. Ven. Sc. Venezia, 1864, p. 599 (1864); Loew, Berl. Ent. Zeitschr. Vol. 11, p. 1-62, 157-175 (1867), Vol. 12, p. 231-240, 387-393 (1868); Beling, Arch. Naturg. Berlin, Vol. 48, p. 240 (1882); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 120 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389, 397 (1895); Williston, Man. N. Amer. Dipt. p. 74 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 282 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 249, 263 (1903); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 438 (1905); Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 209-216, 297-304 (1906), Vol. 7, p. 25-32, 155-160 (1907); Melander, Williston's N. Amer. Dipt. Man. p. 226 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302, 342 (1909); Kertész, Cat. Dipt. Vol. 6, p. 40 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 537 (1910); Lundbeck, Dipt. Danica, Vol. 3, p. 79, 128 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 44, 60 (1910); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 467 (1912); White, Proc. Roy. Soc. Tasmania, 1916, p. 231 (1917); Brunetti, Fauna Brit. Ind. Dip. Vol. 1, p. 347 (1920).
- Anacrostichus**, Bezzi, Deutsche Ent. Zeitschr. 1909, Beiheft, p. 93 (1909); Lundbeck, Dipt. Danica, Vol. 3, p. 96 (1910).
- Argyrandrus**, Bezzi, Deutsche Ent. Zeitschr. 1909, Beiheft, p. 100 (1909).
- Coptophlebia**, Bezzi, ibidem, p. 100 (1909); Lundbeck, Dipt. Danica, Vol. 3, p. 102 (1910).
- Dionnæa**, Meigen, Nouv. Classif. p. 24 (1800); Hendel, Verh. Zool.-bot. Ges. Wien, Vol. 58, p. 54 (1908).
- Enoplempis**, Bigot, Ann. Soc. Ent. France (5), Vol. 10, Bull. p. 47 (1880); Williston, Man. N. Amer. Dipt. p. 81 (1888); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 119 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 249 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 538 (1910).
- Eriogaster**, Macquart, not Germar, 1811 (*Lepidoptera*); Dipt. Exot. Vol. 1, Pt. 2, p. 162 or 278 (1838); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 561 (1857); (6), Vol. 9, p. 120 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 249 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 539 (1910).
- Haplomerinx**, Bezzi, Deutsche Ent. Zeitschr. 1909, Beiheft, p. 86 (1909).
- Lissemplis**, Bezzi, ibidem, p. 99 (1910); Lundbeck, Dipt. Danica, Vol. 3, p. 101 (1910).
- Niconia**, Walker, Ins. Saunders. Dipt. Vol. 1, pl. 6. f. 1 (1852); Trans. Ent. Soc. Lond. Vol. 4, p. 147 (1857).
- Pachymeria**, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 262 (1829); Curtis, Brit. Ent. Vol. 8, p. 18, 4; Meigen, Syst. Besch. Vol. 7, p. 88 (1838); Westwood, Gen. Syn. p. 131 (1840); Rondani, Dipt. Ital. Vol. 1, 151 (1856); Schiner, Fauna Dipt. Austr. Vol. 1, p. 110 (1862); Loew, Wien. Ent. Monatschr. Vol. 8, p. 353-366 (1864); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 119 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389 (1895); Williston, Man. N. Amer. Dipt. p. 74 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 330 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 254, 263 (1903); Melander, Williston N. Amer.

Dipt. Man. p. 226 (1908); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 582 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 98 (1910).

Pachymerina, Macquart, Hist. Nat. Dipt. Vol. 1, p. 333 (1834), Vol. 2, p. 657 (1835); Boitard, Man. Ent. Vol. 3, p. 319 (1843); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 561 (1857); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 254 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 582 (1910).

Platyptera, Meigen, Illiger Mag. Ins. Vol. 2, p. 269 (1803); Curtis, Brit. Ent. Vol. 8, p. 18, 2 (1824).

Platypterygia, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 263 (1829); Westwood, Gen. Syn. p. 131 (1840); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 256 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 592 (1910).

Polyblepharis, Bezzi, Deutsche Ent. Zeitschr. 1909, Beiheft, p. 95 (1909).

Pterempis, Bezzi, ibidem, p. 87 (1909); Lundbeck, Dipt. Danica, Vol. 3, p. 108 (1910).

Xanthempis, Bezzi, Deutsche Ent. Zeitschr. 1909, Beiheft, p. 88 (1909); Lundbeck, Dipt. Danica, Vol. 3, p. 85 (1910).

Characters. — A dominant and variable genus whose species range from three to ten millimeters in length. More or less slender, sometimes abundantly hairy, sometimes nearly bare, usually black though often cinereous or yellow, pollinose or shining. Head narrower than the thorax, globular, or in *Xanthempis* pear-shaped, due to a conical development of the occiput; eyes contiguous on the front, or subcontiguous or fully separated, when contiguous the upper facets usually larger than those below, when separated the facets uniform, eyes of female always separated and with uniform facets; face usually broad, the lower edge somewhat ridged at the epistome, in *Lissemphis* the face is narrow; antennæ generally longer than the head, inserted at or a little above the middle, distinctly three-jointed, the first joint usually longer than the second and both more or less cylindrical, the third joint lengthened, compressed conical, with a terminal two-jointed style whose apical part is longer than the basal segment and tapers; proboscis at least as long as the head, usually much longer, strong, vertical or slightly inflexed, in *Acallomyia* slender and obliquely projecting, labium of variable length, palpi cylindrical, one-jointed, short, extending rather upward; occipital hairs biserial or abundant. Thorax rather large, not greatly convex, generally vittate to mark the acrostichal and dorsocentral spaces, prothorax of *Xanthempis* lobosely broadened, chaetotaxy very variable, sometimes the thorax is abundantly furnished with fine hairs, sometimes the dorsocentrals and acrostichals form definite single rows, sometimes the acrostichals are entirely absent, humeral, posthumeral, notopleural and supraalar bristles variable but usually present; metapleuræ always with some hairs or bristles, pectus with or without hairs. Abdomen rather slender and long, tapering in the female but in the male generally with quite prominent pygidium, which comprises two pairs of lateral valves a ventral piece and a long and slender or short and thick penis; in some species the last ventral segment of the male is pronged. Legs of the female often ornate with scales, sometimes the males have apophyses about the hind knees or on the hind trochanters, otherwise the legs are more or less hairy and bristly. Wings generally narrow but in some females (e. g. *E. borealis*) unusually broad, costa stopping at the end of the wing, basal bristle present or absent, auxiliary vein straight and incomplete, not reaching the costa, third vein forked, discal cell usually rather small, emitting three veins, of which the first may be shortened (*Coptophlebia*), anal cell short and narrow, the anal crossvein abruptly reflexed, the anal vein separate from the anal cell, anal angle of the wing usually more or less rectangular, sometimes obtuse, sometimes strong, auxiliary incision distinct, alula small or absent, fringe of the calypteres variable.

Type species: *E. pennipes*, Linnæus (Pl. 5, Fig. 48, 49), so designated by Latreille, 1810. Curtis, Westwood and Rondani selected *E. tessellata*, Fabricius, 1794, as the type, and this course unfortunately has been usually followed by European dipterists. Bezzi has erected the subgenus

Pterempis for the species about *pennipes*, but for this restricted group the name *Empis* should be restored. Bezzi's subgenus *Empis* should be called *Platyptera*, Meigen, since the species *borealis*, the type of *Platyptera*, occurs there.

Empis is the dominant genus of the family, particularly in the Old World with nearly five hundred species described it has become very complex. Loew and Kuntze, in a series of papers, have subdivided the genus into groups of species centering about a few typical forms. Bezzi, 1909, effected a different separation based mainly on chaetotaxy, and designated his groups as subgenera. These subgenera are differentiated in the previous table of genera. Their limits are far from definite but in the main they appear to be natural groupings. Holopticism appears to have developed in several lines of *Empis* and does not seem to be as ancient a character as Bezzi's definitions would indicate. That is to say, the presence of holopticism in *Empis* does not of itself bespeak relationship.

The mating habits of several species of *Empis* have been studied, particularly by Aldrich and by Hamm. Quite often the males have the habit of presenting a small insect to the female who sucks its juices during copulation. In the American species *aerobatica* the male elaborates a large frothy balloon around his prey and flies with this to induce the female to mate. Species of the subgenus *Xanthempis* do not mate in the air. The species of *Empis*, *s. str.* swarm in shady woods. It is particularly in this group that the legs of the females are pennate with scale-like hairs.

The earliest stages of several species of *Empis* are known. Beling has described the larvæ of *astiva*, *decora*, *nodosa*, *tessellata*, and *trigramma* and Kieffer of *meridionalis*. The larvæ live in rich moist earth, in which they pupate following hibernation. They are cylindrical, tapering anteriorly and consist of twelve segments. Ventrally they show transverse swellings. The pupæ possess bands of abdominal spines.

Empis minuta, Fabr. Described in 1787, belongs to *Phora*, as discussed by Lundbeck, Dipt. Danica, Vol. 3, p. 6, 189 (1910).

SUBGENUS ACALLOMYIA, NOV. SUBGEN.

Characters. — Slender, blackish species with long simple legs. Occipital hairs long and straggling; eyes of male contiguous along the front, the upper facets large; face narrowed; basal antennal joints short, third joint long and tapering; proboscis very slender, projecting obliquely forward, palpi without setæ. Prothorax small, mesonotum gibbose, bare of pubescence, acrostichals sparse but biseriate, dorsocentrals long, sparse, biseriate, lateral bristles long and hair-like, one humeral, one posthumeral, one presutural, several small notopleural, four scutellar, no propleural, metapleural setæ bunched. Abdominal hairs sparse, those before the incisures long and delicate, pygidium small. Wings normal, third vein curving to end at apex, discal cell not pointed, anal vein incomplete.

Type species: *Iteaphila peregrina*, Melander. *Empis brunnea*, Coquillett is a closely related but distinct species.

SUBGENUS ANACROSTICHUS, BEZZI

Characters. — Black, shining or more or less pollinose species of moderate size, with rather fine bristles and few hairs. Sex differences slight. Eyes separated, facets uniform, front of male sometimes narrower than of female, either parallel-sided or centrally contracted; head globose occipital setulæ not clearly biseriate; antennæ relatively short. Prothorax not bilobate; notal hairs undeveloped except a few laterally; no acrostichals, dorsocentrals almost uniseriate, the three hind ones stronger, one humeral bristle and many humeral hairs, one posthumeral, one or two notopleural, two or three presutural, one or two supra-alar; propleural hairs evident, metapleural long, fine and many, four or six scutellars, the inner pair cruciate or convergent. Abdomen bristleless, in the male with rather long

fine pubescence, last sternites of male sometimes deformed, pygidium robust, short, penis thick and hidden, ovipositor suddenly narrowed, styles long and slender. Legs rather stout, hind femora strong, flexor femoral setulæ present. Wings with complete neuration, no basal seta, third vein ending a little before wing-tip, discal cell rather pointed, anal vein reaching margin, axillar incision rectangular or acute.

Type species : *Empis nitida*, Meigen, by Bezzi's designation.

The following species are to be located in this subgenus : *E. bistortæ*, Meig., *humilis*, Coq., *monticola*, Lw., *scoparia*, Coq., *tersa*, Coq., *tumida*, Meig. and *varipes*, Lw.

SUBGENUS ARGYRANDRUS, BEZZI

Characters. — Rather small, yellow, bare species with few bristles, the males with silvery pruinosity. Head round, eyes of male broadly contiguous, the upper facets large, of female narrowly separated, front of female sparsely hairy; first antennal joint not lengthened, third rather elongate; proboscis a little longer than the head. Prothorax very small, notum bare except for the bristles, no acrostichals, seven or eight strong uniseriate dorsocentrals, one humeral, one posthumeral, no notopleural, two presutural, one supra-alar; no propleural and a few metapleural black hairs, four scutellars, the middle ones crossed. Abdomen of male with fine bristles before the incisures, lacking in the female; pygidium small, closed, styles of female long. Legs long, slender, rather bare and with few setæ, simple in both sexes. Wings with complete neuration, rather broad, similar in both sexes, axillar incision rectangular but not deep, discal cell large, rather blunt, third vein straight, ending at apex, cilia of calypteres long and pale.

Type species : *Empis dispar*, Scholtz, by Bezzi's designation. *E. lamellicornis*, Becker belongs here. The American species *captus*, Coquillett, and *vaginifer*, Melander may be assigned here, but they are different from the European species.

SUBGENUS COPTOPHLEBIA, BEZZI

Characters. — Small, black or grayish, pubescent and setose species, sometimes differing greatly in the sexes. Head globose, occiput little setose; proboscis long, palpi small; eyes of male broadly contiguous, the upper facets larger than the lower, of female widely separated; antennæ rather short, basal joints about equal. Prothorax small; notum bare of hairs except at sides, acrostichals biseriate, rarely absent, central dorsocentrals biseriate, the posterior three or four stronger and uniseriate; one longer and several shorter humerals, one each of posthumeral, notopleural, supra-alar and presutural bristles, two cruciate scutellars; propleural and metapleural setæ numerous. Pygidium small. Hind legs lengthened, usually feathered in female, front and hind metatarsi of male more or less thickened. Wings with acute axillar incision and well developed anal lobe, discal cell blunt, fourth and usually anal vein shortened, second submarginal cell large; calypteres long-ciliate.

Type species: *Empis hyalipennis*, Fallen, by Bezzi's designation. The species are more abundant in America and the Orient than in Europe, the following being referable to this subgenus: *E. abbreviata* Lw., *albinervis*, Meig., *albipennis*, Meig., *asema*, Mel., *ceylonica*, Bez., *clausa*, Coq., *confluens*, Beck., *coracina*, Bez., *corcyrica*, Bez., *distans*, Lw., *dolorosa*, Wh.-Mel., *florisomma*, Lw., *hirticrus*, n. sp. (*hirtipes*, Coq.), *Hoffmansseggii*, Lw., *hystrichopyga*, Bez., *inclinata*, Bez., *Jacobsoni*, Meij., *labiata*, Lw., *leptomorion*, Bez., *melaena*, Bez., *papuana*, Bez., *patagiata*, Bez., *Pavesii*, Bez., *pilimana*, Lw., *plorans*, Bez., *santeriana*, Bez., *squamipes*, Coq., *spiloptera*, Wied., *tenuinervis*, Bez., *totipennis*, Bell., *velutina*, Bez. and *volucris*, Meig.

SUBGENUS EMPIS, LINNÆUS, S. STR.

Characters. — Moderately small blackish or cinereous species, showing considerable differences in the sexes. Eyes of male broadly contiguous with the upper facets enlarged. Antennæ shortened, with basal joints about equal. Acrostichals biseriate, dorsocentrals biseriate, rarely pluriseriate, one posthumeral, several lateral bristles and usually lateral pubescence, two or four scutellars; metapleural hairs numerous. Abdomen bristleless. Legs with bristles, male metatarsi more or less thickened, middle tibiæ with fine short erect pubescence along front side; legs of female more or less compressed and variously pennate. Wings with anal lobe well developed, axillary incision acute or rectangular, neuration complete, the anal vein more or less shortened, discal cell rather blunt apically.

Type species : *Empis pennipes*, Linnæus (Pl. 5, Fig. 48, 49), as discussed in a preceding paragraph. *Pterempis*, Bezzi is a synonym. The subgeneric position of *Niconia*, Walker, founded on the Brazilian *Empis penthophora*, Wiedemann is not known.

This subgenus includes species that hover about herbage, in grassy fields and in shady woods. The females have characteristic feathered legs, such as occur also in *Coptophlebia*. The species are confined to Europe, and among others include: *E. aestiva*, Lw., *alpicola*, Str., *brunipennis*, Meig., *caudatula*, Lw., *chiptera*, Meig., *ciliata*, Fab., *ciliatopennata*, Str., *cincinnatula*, Lw., *cinerea*, Zett., *dasyprocta*, Lw., *ghigiana*, Bez., *gymnopoda*, Bez., *hyalogyne*, Bez., *lepidopus*, Meig., *malleola*, Beck., *melanotricha*, Lw., *nigricoma*, Lw., *nigritibialis*, Str., *pennaria*, Fall., *pilosa*, Lw., *plumipes*, Zett., *procera*, Lw., *prodromus*, Lw., *pseudomalleola*, Str., *pusio*, Egg., *rufiventris*, Meig., *scaura*, Lw., *scopulifera*, Bez., *serotina*, Lw., *setosa*, Lw., *subpennata*, Macq., *tanysphyra*, Lw. and *vernalis*, Meig.

SUBGENUS ENOPLEMPIS, BIGOT

Characters. — Species of moderate size, usually black and heavily grayish pollinose, greatly differing in leg structure in the sexes. Head globose, occiput with two rows of setæ; proboscis one and one-half to two times the head-height, palpi sparsely hairy; eyes separated, facets uniformly small; face with parallel sides; antennæ long, the second joint about half the length of the first, style about one-third the last joint. Prothorax not lobose; notum bare of hairs; acrostichals and dorsocentrals small and uniseriate, scutellars not cruciate, one humeral, one or two presutural; no propleural, a row of metapleural setulæ. Abdomen scarcely hairy, pits prominent, pygidium small, closed. Legs robust, males usually with apophyses about the hind knees or on the hind trochanters, bristles reduced, tarsi short-spinose beneath. Wings narrow, axillar incision rectangular, anal lobe small, discal cell not blunt.

Type species : *Enoplemis mira*, Bigot, the original unique species. This group is well represented in North America, the following species belonging here: *E. aripes*, Mel., *aerobatica*, Mel., *arthritica*, Mel., *Bigoti*, Mel., *cacuminifer*, Mel., *canaster*, Mel., *clauda*, Coq., *dolabraria*, Mel., *enodis*, Mel., *falcata*, Mel., *gladiator*, Mel., *longipes*, Lw., *loripedis*, Coq., *manca*, Coq., *metapleurialis*, Bez., *mira*, Big., *mixopolia*, Mel., *nodipes*, Mel., *nuda*, Lw., *podagra*, Mel., *poplitea*, Lw., *stenoptera*, Lw., *teres*, Mel. and *valentis*, Coq.

SUBGENUS HAPLOMERINX, BEZZI

Characters. — Body more or less yellowish, without white pruinosity in the male. Eyes of male contiguous, the upper facets distinctly larger than the lower. No acrostichals, dorsocentrals uniseriate, one or two presuturals, scutellar bristles not cruciate. Axillar incision of wings obtuse, discal cell pointed.

This brief diagnosis is combined from the characters given in the identification key in Dr. Bezzi's paper. No type was designated and no species have been assigned to this subgenus.

SUBGENUS LISSEMPIS, BEZZI

Characters. — Small black shining nearly bare species with little difference between the sexes. Head round, occiput with few bristles; eyes with small uniform facets, narrowly separated on front and face, the face narrower than in the other groups; first antennal joint rather long, third narrow; proboscis little longer than the head, palpi small, black, nearly bare. Prothorax small, not lobate; bristles reduced, yellow, dorsocentrals and acrostichals fine and usually biseriate, no humeral, notopleural or posthumeral, two or four scutellars, the middle ones not crossed; propleural and metapleural hairs numerous. Abdomen bristleless, with rather long hairs, pygidium small, open, ovipositor long, styles long and narrow. Legs hairy and setose, especially in male, hind legs lengthened, with thickened metatarsi, legs of female simple. Wings more or less narrowed, alike in both sexes, second submarginal cell rather large, third vein ending at apex, discal cell rather blunt, anal vein small or wanting, axillar incision wide and shallow.

Type species : *Empis nigrivittata*, Meigen, by Bezzi's designation. Additional species referable to this subgenus are: *E. crassipes*, Meig., *cuneipennis*, Bez., *liosoma*, Bez. and *utilidissima*, Str.

SUBGENUS PACHYMERIA, STEPHENS

Characters. — Generally black, robust species of moderate size, sometimes with yellowish abdomen; sexes slightly different in color and leg structure. Dichoptic, facets small and uniform, front of male with the sides parallel or centrally convergent; head globose, occiput hairy and setose; proboscis long, palpi variable, short or long, setose, yellow or black; antennæ rather short, third joint usually strongly narrowed apically. Thorax bristly and pubescent, acrostichals in two or four rows, dorsocentrals bi- or pluriserial, sometimes not distinct from the hairs, humerals, posthumerals and notopleurals sometimes not distinct, sometimes numerous, two or more presuturals, one or more supra-alar, four to eight scutellars; propleural and metapleural hairs abundant. Abdomen without bristles, pygidium compressed, penis sometimes long and free, ovipositor short. Legs strong, short, hind femora more or less thickened, of female sometimes fringed. Wings of female sometimes a little broader than of male, venation complete, third vein straight, ending slightly before apex, second submarginal cell rather small, discal cell pointed, axillar incision sharp and usually deep.

Type species : *Empis femorata*, Fabricius (Pl. 5, Fig. 47), the single original species. *Pachymerina*, Macquart is synonymous, its genotype being also *E. femorata*, Fab., so designated by Coquillett in 1903. The following species belong to this group: *E. brevis*, Lw., *contigua*, Lw., *Erberi*, Lw., *grisea*, Fall., *Johnsoni*, Mel., *mediterranea*, Lw., *obscuripes*, Lw., *opaca*, Meig., *otiosa*, Coq., *palparis*, Egg., *picea*, Bez., *ptilocnemis*, Lw., *pudica*, Lw., *ruficornis*, Lw., *specularis*, Bez., *subclavata*, Lw., and *trianguligera*, Str.

SUBGENUS PLATYPTERA, MEIGEN

Characters. — Middle-sized to large, generally blackish or brownish, pollinose species. Head globose, occiput hairy, eyes of male contiguous, upper facets somewhat larger than the lower ones; first antennal joint usually twice as long as the second and hairy; palpi hairy. Prothorax small, mesonotum hairy, dorsocentrals pluriserial, rarely uniserial, acrostichals bi- or pluriserial, usually several humeral, posthumeral, notopleural and supra-alar setæ to be distinguished among the lateral hairs; pectus hairy, metapleural setæ bunched. Abdomen more or less hairy and long-setose on the margins;

pygidium large or rather small. Legs setose, metatarsi not swollen, female legs rarely pennate. Wings of female of *E. borealis* remarkably broad, but in the other species normal, neuration usually complete, discal cell more or less pointed, anal lobe full, axillary incision deep and sharp.

This genus originally included two species, *Empis borealis*, Linn., and *platyptera*, Panz. Curtis in 1824 designated *borealis* as type, unmindful of the rule in present-day nomenclatorial procedure that gives preference to a tautonymic species. Accepting Curtis' selection safeguards much confusion for otherwise the host of species described as *Rhamphomyia* would require a change of name to the earlier described *Platyptera*. Hendel would recognize in *Diennata* the genus *Platyptera*, and acceptance of this conclusion would still further imperil the nomenclatorial stability of the dominant genus *Rhamphomyia*. *Eriogaster*, Macquart founded on *Empis laniventris*, Eschscholz is subgenerically equivalent to the species grouped about *E. borealis*. *Platypterygia*, Stephens was erected for *E. borealis*. This is the group for which most European dipterists reserve the name *Empis*, s. str., based on *E. tessellata*.

The following species belong to the subgenus *Platyptera*: *E. alampra*, Lw., *Aldrichii*, Mel., *borealis*, Linn., *brachysoma*, Coq., *brevicornis*, Lw., *caligena*, Mel., *calcarata*, Bez., *cognata*, Egg., *cothurnata*, Brullé, *crassa*, Now., *dedecor*, Lw., *discolor*, Lw., *divergens*, Lw., *erosa*, Lw., *fallax*, Egg., *fraterna*, Lw., *fumida*, Coq., *infumata*, Coq., *laevigata*, Lw., *laniventris*, Eschsch., *livida*, Linn., *lucida*, Zett., *maculipes*, Zett., *meridionalis*, Meig., *morio*, Fab., *nigricans*, Meig., *nitidiventris*, Lw., *obesa*, Lw., *opaca*, Meig., *plebeja*, Lw., *polita*, Macq., *ravida*, Coq., *scatophagina*, Mel., *serena*, Pok., *strigata*, Lw., *tessellata*, Fab., *variegata*, Meig., and *virgata*, Coq.

SUBGENUS POLYBLEPHARIS, BEZZI

Characters. — Rather large, cinereous, heavily bristly species, with sex differences in color and size. Both sexes dichoptic, facets small and uniform; sides of front parallel; head globular, with strong occipital bristles; proboscis long, palpi large, with many long bristles; first antennal joint short, third not long, excavated below the tip. Thorax strongly bristly and sometimes also hairy; acrostichals dense, more or less definitely biseriate, central dorsocentrals in two or more rows, the posterior three to seven strong and uniseriate, several each of humeral, posthumeral, notopleural, presutural and supra-alar bristles, four to eight scutellars; propleural and metapleural bristles very strong. Abdomen hairy and with very strong lateral bristles before the incisures, pygidium small and closed, female abdomen blunt, ovipositor short. Legs stout, strongly bristly and hairy, the hind coxæ and hind femora greatly thickened, especially in the male, hind femora more or less curved. Wings alike in both sexes, unusually narrow and pointed, neuration complete and light colored, no basal seta, third vein anteriorly located and ending much before apex, second submarginal cell very small, discal cell small, rather pointed, axillar incision acute and rather deep.

Type species: *Empis albicans*, Meigen, by Bezzi's designation. The other recorded species are *curvipes*, Lw., *eumera*, Lw., and *phanomeris*, Lw., all restricted to Southeastern Europe and Asia Minor. The American species *frontalis*, Coq., and *spectabilis*, Lw., may be assigned here, although probably they are phylogenetically distinct.

SUBGENUS PYRREMPIS, NOV. SUBGEN.

Characters. — Full-sized, yellow, setose species. Head globular, occipital setæ biseriate and strong; eyes of male narrowly separated above the middle of the front, facets uniform; antennæ setulose at base, the second joint much shorter than the first; proboscis twice the head-height, palpi with few hairs. Prothorax not lobate, but margined with stiff setæ; dorsocentrals uniseriate, acrostichals wanting or the anterior ones weakly indicated, humeral, posthumeral, presutural, two notopleural, and one or two supra-alar bristles present; propleural setæ present, metapleural setæ bunched. Abdomen shining,

with long thin setæ before the incisures, pygidium large or small. Legs setose, normal. Wings normal, anal angle full, axillar incision deep and acute, costa with basal spine.

Type species : *Empis rufescens*, Loew. *E. tridentata*, Coq. also belongs here. Both species inhabit North America.

SUBGENUS XANTHEMPIS, BEZZI

Characters. — Yellowish, bare, middle-sized species not showing sexual dimorphism. Eyes of both sexes separated, facets uniform, front of male parallel-sided; head piriform, the occiput projecting, its bristles in two regular series; first antennal joint usually lengthened, third narrow and long. Prothorax neck-like, bilobed and setigerous above; notal bristles small, no pubescence, dorso-centrals uniseriate, no acrostichals, typically one humeral, no notopleural, one posthumeral, one supra-alar and two or four scutellar bristles, the inner ones cruciate; metapleural setulæ fine and moderately few. Abdomen sparingly hairy and not bristly, pygidium large, with large free penis, styles of ovipositor rather long. Legs not stout, simple, slightly hairy. Wings with strong veins, third vein curving back and ending at wing-tip, discal cell blunt, anal angle obtuse.

Xanthempis is regarded as ancestral to the other divisions of *Empis*, as is shown by the yellow, bare body with reduced bristles, the dichoptic males and lack of sexual dimorphism. The species inhabit shady places in woods and thickets during early summer and do not hover in the aerial dance characteristic of other species. Nearly all the known species are European, although two of the following list are American.

Type species : *Empis stercorea*, Linnaeus, by Bezzi's designation. Additional species are the following: *E. æmula*, Lw., *æqualis*, Lw., *albifrons*, Bez., *caucasica*, Bez., *concolor*, Verr., *digramma*, Meig., *feruginea*, Meig., *Kuntzei*, Beck., *læta*, Lw., *loewiana*, Bez., *lutea*, Meig., *pallida*, Lw., *parvula*, Egg., *pittoprocta*, Lw., *pæcilopectera*, Lw., *punctata*, Meig., *scutellata*, Curt., *semicinerea*, Lw., *styriaca*, Strobl, *testacea*, Fabr., *testiculata*, Bez., *trigramma*, Meig., and *univittata*, Lw.

Geographical distribution.

1. *E. abbreviata*, Loew, Berlin. Ent. Zeitschr. Vol. 13, p. 84 (1869); Strobl, C. Europe.
Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 69 (1892);
Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 303 (1906); Bezzi, Deutsche
Ent. Zeitschr. Beiheft, p. 102 [1909] (*Coptophlebia*).
2. *E. abbrevinervis*, Meijere, Tijdschr. v. Ent. Vol. 54, p. 328 (1911). Java.
3. *E. abcirus*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 494 (1849); Melander, Georgia.
Trans. Amer. Ent. Soc. Vol. 28, p. 299 (1902).
4. *E. abrupta*, Thomson, Eugen. Resa, Dipt. p. 473 (1870). Cape of Good Hope.
5. *E. adusta*, Loew, Beschr. Eur. Dipt. Vol. 1, p. 266 (1869); Kuntze, Corfu.
Zeitschr. Hym. Dipt. Vol. 6, p. 213 (1906).
6. *E. æmula*, Loew, Beschr. Eur. Dipt. Vol. 3, p. 228 (1873); Kuntze, C. Europe.
Zeitschr. Hym. Dipt. Vol. 6, p. 211 (1906); Bezzi, Deutsche Ent.
Zeitschr. Beiheft, p. 90 [1909] (*Xanthempis*).
7. *E. æqualis*, Loew, Berl. Ent. Zeitschr. Vol. 11, p. 13, 20 (1867); Strobl, C. Europe.
Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 60 (1892);
Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 211 (1906); Bezzi,
Deutsche Ent. Zeitschr. Beiheft, p. 89 [1909] (*Xanthempis*).
? *pallens*, Roser, Correspondenzbl. Landw. Ver. Würtemb. Stuttgart, Vol. 1,
p. 53 (1840); Bezzi, Deutsch. Ent. Zeitschr. Beiheft, p. 89 (1909).
8. *E. æripes*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 328 (1902). — N. W. United States.

Pl. 9, Fig. 141.

9. *E. aerobatica*, Aldrich & Turley, Amer. Natur. Vol. 33, p. 802 [1899] (*Empis*, sp. habits); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 323 (1902); Slosson, Ent. News Philad. Vol. 14, p. 268 (1903); McAtee, Ent. News Philad. Vol. 20, p. 359 (1909). W. United States.
10. *E. aestiva*, Loew, Berl. Ent. Zeitschr. Vol. 11, p. 39, 54 (1867); Beling, Arch. Naturg. Berlin, Vol. 48, p. 211 (1882); ? Strobl, Verh. Siebenb. Ver. Nat. Hermannstadt, Vol. 46, p. 22 (1897); Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 302 (1906); Lundbeck, Dipt. Danica, Vol. 3, p. 125, f. 41 [1910] (*Pterempis*); Wahlgren, Ent. Tidskr. Vol. 31, p. 64 (1910). C. Europe.
volucris, Zetterstedt (not Meigen), Dipt. Scand. Vol. 1, p. 387, 21 (1842); Scholz, Zeitschr. Ent. Breslau, Vol. 5, p. 53 (1851); ? Schiner, Fauna Dipt. Austr. Vol. 1, p. 109 (1862); Siebke, Enum. Ins. Norv. Vol. 4, p. 33, 14 (1877); Siebke, Nyt Mag. Naturvid. Vol. 14, p. 399 (1866); Lundbeck, Dipt. Danica, Vol. 3, p. 121, 127 (1910).
11. ? *E. aestiva*, Scopoli, Ent. Carn. p. 365 [1763] (*Asilus*); Loew, Linn. Ent. Berlin, Vol. 4, p. 87, note (1849); Schiner, Verh. Zool.-bot. Ges. Wien, Vol. 6, p. 420 (1856) ? gen. C. Europe.
- *E. affinis*, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 263 (1829), no description.
12. *E. agasthus*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 496 (1849); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 397 (1895). Canada.
13. *E. alampra*, Loew, Berl. Ent. Zeitschr. Vol. 17, p. 37 (1872); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 137 (1899); Kuntze, Zeitschr. Hym. Dipt. Vol. 7, p. 27 (1907). C. & S. Europe.
14. *E. albicans*, Meigen, Syst. Besch. Vol. 3, p. 20 (1822); Schiner, Fauna Dipt. Austr. Vol. 1, p. 105 (1862); Loew, Berl. Ent. Zeitschr. Vol. 12, p. 170, 387, 393 (1868); Kuntze, Zeitschr. Hym. Dipt. Vol. 7, p. 32 (1907); Bezzi, Deutsche Ent. Zeitschr. Beiheft, p. 96 [1909] (*Polyblepharis*). C. & S. Europe.
15. *E. albicincta*, Loew, Oefv. Vet. Akad. Förrh. Stockholm, Vol. 15, p. 340 (1858); Dipterenf. Südaf. p. 264, pl. 2, f. 47 (1860). Cape of Good Hope.
16. *E. albidiseta*, Becker, Zeitschr. Hym. Dipt. 1907, p. 229 (1907). Tunis.
17. *E. albifrons*, Bezzi, Deutsche Ent. Zeitschr. Beiheft, p. 90, 91 (1909). C. Europe.
nana, Loew (not Macquart), Berl. Ent. Zeitschr. Vol. 11, p. 18, 21, 10 (1867); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 60 (1892); Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 210 (1906).
18. *E. albinervis*, Meigen, Syst. Besch. Vol. 3, p. 26 (1822); Walker, Ins. Brit. Vol. 1, p. 94 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 106 (1862); Strobl, Progr. Seitenstetten, Vol. 14, p. 9 (1880); Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 74 (1892); Glasnik Zem. Mus. Bosn. Herceg. Sarajevo, Vol. 14, p. 470 (1902); Mitth. Bosn. Herceg. Sarajevo, Vol. 9, p. 529 (1904); Kuntze, Zeitschr. Hym. Dipt. Vol. 7, p. 28 (1907); Bezzi, Deutsche Ent. Zeitschr. Beiheft, p. 101 [1909] (*Coptophlebia*); Lundbeck, Dipt. Dan. Vol. 3, p. 105 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 63 (1910). Europe.
albipennis, Zetterstedt (not Meigen), Dipt. Scand. Vol. 1, p. 386 (1842).
hyalipennis, Schiner, part, Fauna Dipt. Austr. Vol. 1, p. 106 (1862).
var. *impennis*, Strobl, Glasnik Mus. Bosn. Herceg. Sarajevo, Vol. 14, p. 470 (1902); Mitteil. Bosn. Herceg. Sarajevo, Vol. 9, p. 529 (1904); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 66 (1909). C. Europe.
var. *pennata*, Strobl (not Schrank), Glasnik Mus. Bosn. Herceg. Sarajevo, Vol. 14, p. 470 (1902); Mitth. Bosn. Herceg. Sarajevo, Vol. 9, p. 529 (1904). C. Europe.
19. *E. albipennis*, Meigen (not Zetterstedt), Syst. Besch. Vol. 7, p. 84, 60 (1838); Kuntze, Zeitschr. Hym. Dipt. Vol. 7, p. 28 (1907); Bezzi, Deutsche Ent. Zeitschr. Beiheft, p. 101, note [1909] (*Coptophlebia*). Spain.

20. *E. albohalteralis*, Brunetti, Fauna Brit. Ind. Brachyc. Vol. 1, p. 350 (1920). Baluchistan.
21. *E. Aldrichii*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 309, f. 110 (1902). N. W. United States.
22. *E. algecirasensis*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 172 (1909). Spain.
23. *E. algira*, Macquart, Dipt. Exot. Vol. 1, Pt. 2, p. 159 (1839); Explor. Scien. Algérie, Zool. Vol. 3, p. 443 (1849); Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 215 (1906); Becker, ibidem, Vol. 7, p. 125 (1907). Algeria.
24. *E. alpicola*, Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 71 (1892), Vol. 34, p. 204 (1898); Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 303 (1906). Alps.
25. *E. alpina*, Loew, Berl. Ent. Zeitschr. Vol. 11, p. 24 (1867); Pokorny, Verh. Zool.-bot. Ges. Wien, Vol. 37, p. 393 (1887); Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 213 (1906). Alps.
26. *E. ambigua*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 439 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 345 (1909). Peru.
27. *E. amplitarsis*, Brunetti, Fauna Brit. Ind. Brachyc. Vol. 1, p. 349, f. 29 (1920). Bombay.
28. *E. amytiis*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 493 (1849); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 398 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 299 (1902); Aldrich, Cat. Dipt. N. Amer. p. 321 [1905] (*amystis*). New York.
29. *E. angustipennis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 351 (1909). Peru.
30. *E. annulata*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 758 [1865] (*Pachymeria*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 457 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 347 (1909). Chile.
31. *E. annulipes*, Wheeler & Melander, Biol. Centr. Amer. Dipt. Vol. 1, p. 369 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 289, f. 115 (1902); Bezzi, Nova Act. Akad. Naturf. Halle, Vol. 91, p. 346 (1909). Mexico.
32. *E. antarctica*, Walker, Trans. Linn. Soc. Lond. (Zool.) Vol. 17, p. 341, 26 (1837); List Dipt. Brit. Mus. Vol. 3, p. 495 (1849); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 346 (1909). Magellan Straits.
33. *E. anthracina*, Bigot, Mission Scient. Cap Horn, Dipt. p. 19 (1888); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, 345 (1909). Cape Horn.
34. *E. Apfelbecki*, Strobl, Glasnik. Zem. Bosn. Herceg. Sarajevo, Vol. 10, p. 407 (1898); Wiss. Mitth. Bosn. Herceg. Sarajevo, Vol. 7, p. 567 (1900); Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 304 (1906). S. Europe.
35. *E. apicalis*, Loew, Berl. Ent. Zeitschr. Vol. 9, p. 237 (1865); Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 213 (1906). Imeretia.
- *E. aprica*, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 262 (1829), no description.
36. *E. aquilus*, White, Proc. Roy. Soc. Tasmania, 1916, p. 234 (1917). Tasmania.
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38. *E. argyrozona*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 754 (1865); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 346 (1909). Chile.
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453. *E. variabilis*, Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 291 (1857); Chile.
Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 753 (1865); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 347 (1909).
454. *E. varians*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 130 (1889); Chile.
Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 343 (1909).
455. *E. variegata*, Meigen, Class. Besch. Eur. Zweifl. Ins. Vol. 1, p. 225 C. Europe.
(1804); Loew, Wien. Ent. Monatschr. Vol. 6, p. 168 (1862); Berl. Ent. Zeitschr. Vol. 9, p. 238 (1865); Mik, Dipt. Bernst. Vol. 2, p. 57 (1885); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 62, note (1893); Kuntze, Zeitschr. Hym. Dipt. Vol. 6, p. 213 (1906).
456. *E. varipes*, Loew, Berl. Ent. Zeitschr. Vol. 5, p. 324 : Cent. 1, No. 34 E. North America.
(1861); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 399 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 307 (1902).
457. *E. velutina*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 468, 471 [1912] Formosa.
(*Coptophlebia*).
var. *cineraria*, Bezzi, Suppl. Ent. Berlin, Vol. 3, p. 71 [1914] (*Coptophlebia*). Formosa.
458. *E. vernalis*, Meigen, Syst. Besch. Vol. 3, p. 27 (1822); Curtis, Brit. Europe, Siberia.
Ent. Vol. 8, p. 18, 4 (1824); Zetterstedt, Dipt. Scand. Vol. 1, p. 384 (1842); Walker, List Dipt. Brit. Mus. Vol. 3, p. 495 (1849); Zetterstedt, Dipt. Scand. Vol. 8, p. 3025 (1849); Walker, Ins. Brit. Vol. 1, p. 93 (1851); Zetterstedt, Dipt. Scand. Vol. 11, p. 4271 (1852); Pipping, Not. Sällsk. Fenn. Förh. Helsingfors, Vol. 4, p. 114 (1858); Bonsdorff, Finl. Ins. Vol. 1, p. 167 (1861); Schiner, Fauna Dipt. Austr. Vol. 1, p. 107 (1862); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 78 (1893); Becker, Act. Soc. Fenn. Helsingfors. Vol. 26 (9), p. 28 (1900); Kuntze, Zeitschr. Hym. Dipt. Vol. 7, p. 27 (1907); Lundbeck, Dipt. Dan. Vol. 3, p. 114 [1910] (*Pterempis*); Wahlgren, Ent. Tidskr. Vol. 31, p. 64 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 42 [1913] (*Pterempis*); Kuntze, Deutsche Ent. Zeitschr. p. 548 (1913).
hyalinata, Meigen, Syst. Bes. Vol. 6, p. 338 (1830).
? *leucoptera*, Meigen, Classif. Besch. Eur. Zweifl. Ins. Vol. 1, p. 221 (1804); Syst. Besch. Vol. 3, p. 27 (1822); Curtis, Brit. Ent. Vol. 8, p. 18 (1824);

- Meigen, Syst. Besch. Vol. 6, p. 337 (1830); Walker, List Dipt. Brit. Mus. Vol. 3, p. 495 (1849); Ins. Brit. Vol. 1, p. 94 (1851).
- pennaria*, Fallen, part, Empid. Suec. p. 20, part (1815); Zetterstedt, Fauna Ins. Lappon. p. 562, part (1838); Lundbeck, Dipt. Danica, Vol. 3, p. 118 [1910] (*Pterempis*); Wahlgren, Ent. Tidskr. Vol. 31, p. 63 (1910).
459. *E. vicina*, Arribáizaga, Natural. Argent. Buenos-Aires, Vol. 1, p. 294 (1878); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 345 (1909). Argentina.
460. *E. villosa*, Macquart, Mém. Soc. Sc. Lille, p. 161 (1823). France.
461. *E. villosula*, Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 131 (1889); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 343 (1909). Chile.
462. *E. virgata*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 408 (1895); Proc. Wash. Acad. Sc. Vol. 2, p. 408 (1900); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 312, f. 108 (1902). W. North America, Alaska.
463. *E. volucris*, Wiedemann-Meigen, Syst. Besch. Vol. 3, p. 23 (1822); Loew, Berl. Ent. Zeitschr. Vol. 11, p. 56 (1867); Strobl, Wien. Ent. Zeit. Vol. 18, p. 17 (1899); Kuntze, Zeitschr. Hym. Dipt. Vol. 7, p. 26 (1907). S. & C. Europe.
- var. *vitripennis*, Meigen, Syst. Besch. Vol. 3, p. 25 (1822); Curtis, Brit. Ent. Vol. 8, p. 18, 4 (1824); Macquart, Dipt. N. France, Vol. 3, p. 127 (1827); Hist. Nat. Vol. 1, p. 332 (1834); Boitard, Man. Ent. Vol. 3, p. 319 (1843); Walker, Ins. Brit. Vol. 1, p. 94 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 106 (1862); Loew, Berl. Ent. Zeitschr. Vol. 11, p. 57, 163 (1867); ibidem, Vol. 13, p. 88 (1869); Raddatz, Arch. Ver. Freund Nat. Mecklenb. Rostock, Vol. 27, p. 40 (1873); Elliot, Trans. Ent. Soc. Lond. 1896, p. 117-128 (1896); Bezzi, Deutsche Ent. Zeitschr. Beiheft, p. 101 [1909] (*Coptophlebia*); Lundbeck, Dipt. Danica, Vol. 3, p. 106, f. 37 [1910] (*Coptophlebia*).
- nana*, Macquart, Mém. Soc. Sc. Lille, p. 161, 165 (1823); Bezzi, Deutsche Ent. Zeitschr. Beiheft, p. 91 (1909).
- turbida*, Meigen, Syst. Besch. Vol. 7, p. 86 (1838); Schiner, Fauna Dipt. Austr. Vol. 1, p. 108 (1862); Loew, Berl. Ent. Zeitschr. Vol. 11, p. 61, 163 (1867); Neuhaus, Dipt. March. p. 72 (1886); Kuntze, Zeitschr. Hym. Dipt. Vol. 7, p. 26 [1907] (*turfida*).
464. *E. Walkeri*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 343 (1909). Magellan.
- fulva* Walker (not Macquart), Trans. Linn. Soc. Lond. (Zool.) Vol. 17, p. 341 (1837).
465. *E. xanthopyga*, Schiner, Novara Reise, Dipt. p. 204, 6 (1869); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 343, note (1904). Australia.
466. *E. xochill*, Wheeler & Melander, Biol. Centr. Amer. Dipt. Vol. 1, p. 370 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 292, f. 118 (1902); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 345 (1909). Mexico.

27. GENUS EMPIMORPHA, COQUILLETT

Empimorpha, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389, 396 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 329 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 249, 263 (1903); Melander, Williston Man. N. Amer. Dipt. p. 226 (1908); Kertész, Cat. Dipt. Vol. 6, p. 79 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 537 (1910).

Characters. — Robust species, differing from *Empis*, s. str., only in the greater development of the hairs which occur in conspicuous amount even on the face. Style of the antennæ much shorter than the third joint, basal joints of the antennæ hirsute; eyes of the male contiguous along the front, the upper facets larger than the lower but still small; proboscis twice as long as the head, vertical, palpi rather cylindrical, porrect, hairy. Disk of the thorax very hairy, not setose, about six notopleurals no

humeral or posthumeral; metapleuræ and pectus abundantly hairy. Abdomen with more or less hairs, stout, sometimes asymmetrical toward the end in the male, in which case the fifth ventral is large and posteriorly tuberculate. Legs strong but not deformed, hairy and bristly. Wings narrow, costa stopping at the tip of the wing, basal bristle present, auxiliary vein straight, ending before the costa, third vein with a short fork, discal cell complete, shorter than the basals, anal cell small, anal vein attaining the margin, axillar excision deep, alula small, with a short close fringe of fine hairs; calypteres nearly bare, their fringe almost microscopic.

Type species: *E. comantis*, Coquillett. This group was supposed by Coquillett to bear the same relation to *Empis* that *Neocota* did to *Rhamphomyia*. In both cases the distinguishing characters are confined to the hairy face and nearly bare calypteres. Species of *Empis* of the *obesa* group are very similar to *Empimorpha*, even to the reduction of the fringe of the calypteres. It seems more likely that *Neocota* has developed from *Empimorpha* by a loss of the fork of the third vein than that both of these genera are parallel outgrowths of *Rhamphomyia* and *Empis*. Such an evolution opens the interesting question as to whether *Rhamphomyia* is not a polyphyletic group, developing from several of the subgenera of *Empis* through a simplification of the third vein.

Geographical distribution.

1. *E. barbata*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 195 : Cent. 2, No. 19 California, Washington.
[1862] (*Empis*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 396
(1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 329, f. 106,
(1902).
2. *E. comantis*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 396 (1895); California.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 330, 353 (1902).
3. *E. geneatis*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 329, f. 105 (1902). California.
4. *E. plumipes*, Matsumura, Addit. Vol. 2, p. 356, pl. 21, f. 18 (1916). Japan.
5. *E. rufithorax*, Brunetti, Rec. Indian Mus. Vol. 9, p. 30 (1913); Fauna India.
Brit. India, Dipt. Vol. 1, p. 359 [1920] (*Hilara*).

28. GENUS NEOCOTA, COQUILLET

Neocota, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 434 (1895); Proc. Ent. Soc. Wash. Vol. 5, p. 254, 260 (1903); Melander, Williston, N. Amer. Dipt. Man. p. 225 (1908); Kertész, Cat. Dipt. Vol. 6, p. 38 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 574 (1910).

Characters. — Large stout pilose species resembling *Rhamphomyia* but with hairy face and bare calypteres. Wholly opaque black. Eyes of the male entirely contiguous above the antennæ, bare, the facets minute and uniform, face broad and densely hairy; antennæ elongate, equalling the length of the head, the first joint cylindrical, long and hairy, the second joint globular and not setose, the third joint lanceolate, tapering to near the end, then narrowly cylindrical, its style one-third as long as the third joint, thick, consisting of two joints, with the basal segment quadrate and the outer segment conical and twice as long as the basal; proboscis slender, nearly vertical, slightly shorter than the head, palpi narrowly spatulate, black and densely hairy. Prothorax and mesothorax densely hairy, three notopleural bristles but no others, scutellum with a dense fringe, metapleuræ with a dense cluster of hairs. Basal segments of the abdomen with abundant hair, fourth to the seventh tergites velvety, second tergite with a double transverse row of pittings; lateral valves of the pygidium large and ovoid, dorsal valves small, penis rather slender, only its base visible. Legs robust, including the coxæ densely hairy, no bristles but many of the hairs long and setiform. Fringe of the calypteres vestigial, the hairs of

microscopic size. Wings without a humeral bristle, the alula, anal incision and anal lobe well developed, costa stopping beyond the third vein but before the tip of the wing, auxiliary vein straight and vanishing at the tip, first vein long, third vein not forked, anal crossvein abruptly reflexed, continuous with the under side of the anal cell, anal vein faint, marginal cilia and setulæ microscopic.

Type species : *N. Weedi*, Coquillett, the only known species.

Geographical distribution.

1. *N. Weedi*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 434 (1895); S. E. United States.
Howard, Ins. Book. pl. 18, f. 30 (1901).

29. GENUS RHAMPHOMYIA, MEIGEN

Rhamphomyia, Meigen, Syst. Besch. Vol. 3, p. 42 (1822); Macquart, Dipt. N. France, Vol. 3, p. 129 (1827); Curtis, Brit. Ent. Vol. 8, p. 517 (1834); Macquart, Hist. Nat. Dipt. Vol. 1, p. 334 (1834); Zetterstedt, Fauna Ins. Lappon. p. 562 [1838] (*Rhamphomyza*); Westwood, Gen. Syn. p. 131 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 388 (1842); Boitard, Man. Ent. Vol. 3, p. 319 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 108 (1851); Berendt, Bernstein. Organ. Reste Vorw. [1856] (*Rumphiomyia*); Rondani, Dipt. Ital. Vol. 1, p. 151 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 563 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 96 (1862); Lioy, Atti Inst. Ven. 1864, p. 601 (1864); Beling, Arch. Naturg. Berlin, Vol. 48, p. 240 (1882); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 122 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390, 409 (1895); Proc. Ent. Soc. Wash. Vol. 5, p. 256 (1903); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 428 (1905); Melander, Williston Man. N. Amer. Dipt. p. 225 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 302. 320 (1909); Kertész, Cat. Dipt. Vol. 6, p. 15 (1909); Frey, Acta Soc. Sc. Fenn. Helsingfors. Vol. 31 (9), p. 17-21 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 599 (1910); Lundbeck, Dipt. Danica, Vol. 3, p. 30 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 44, 48 (1910); White, Proc. Roy. Soc. Tasmania, 1916, p. 237 (1917); Malloch, Rept. Can. Arct. Exped. 1913-18, Dipt. p. 44 (1919); Brunetti, Fauna Brit. India Dipt. Vol. 1, p. 345 (1920); Frey, Notulæ Ent. Vol. 2, p. 1-10, 33-45, 65-77 (1922).

Choreodromia, Frey, Notulæ Ent. Vol. 2, p. 3, 6 (1922).

Dasyrhamphomyia, Frey, Notulæ Ent. Vol. 2, p. 4, 65 (1922).

Dionnæa, Meigen, Nouv. Classif. Mouches, p. 24, part. (1800); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 534 (1910).

Enicopteryx, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 264 (1829); Westwood, Gen. Syn. p. 131 (1840); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 249 (1903); Kertész, Cat. Dipt. Vol. 6, p. 15 [1908] (*Henicopteryx*); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 538 (1910).

Holoclera, Schiner, Wien. Ent. Monatschr. Vol. 4, p. 53 (1860); Fauna Dipt. Austr. Vol. 1, p. 80 (1862); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 122 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 251, 260 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 552 (1910); Frey, Notulæ Ent. Vol. 2, p. 3, 5 (1922).

Lundstroemiella, Frey, Notulæ Ent. Vol. 2, p. 3, 4 (1922).

Macrostomus, Wiedemann, Zool. Mag. Berlin, Vol. 1, Pt. 1, p. 60 (1817); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 252, 260 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 564 (1910).

Megacyttarus, Bigot, Ann. Soc. Ent. France (5), Vol. 10, Bull. p. 47 (1880); Williston, Synopsis N. Amer. Dipt. p. 82 (1888); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 117 [1899] (*Megacittarus*);

Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 350 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 253 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 566 (1910).

Pararhamphomyia, Frey, Notulæ Ent. Vol. 2, p. 3, 33 (1922).

Platyptera, Meigen-Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 256 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 592 (1910).

Characters. — Usually rather slender insects measuring from three to nine millimeters, of dark often shining coloration, though sometimes yellow. Head globular, occiput hairy; eyes of the male usually contiguous or subcontiguous, if separated the front of the male is narrower than that of the female, when dichoptic the facets are uniform, when holoptic the upper facets are somewhat larger, eyes of the female always separated and with uniform facets; face quadrate or narrow, cheeks linear; antennæ inserted near the middle of the head, projecting horizontally about as much as the head-height, distinctly three-jointed, the first joint usually cylindrical and a little longer than the globose second joint, both more or less hairy, the third joint elongate conical, tipped by a two-segmented style, whose distal part is longer than the basal and tapers; proboscis ranging from as long as the head to twice as long, depending vertically or folded somewhat backward, palpi cylindrical upturned, hairy. Thorax often a little arched, metathorax small, notal bristles very variable, as in *Empis*, metapleuræ always more or less setose. Abdomen usually compressed, pygidium often large and elaborate, generally compressed and erect with slender central filament and broad lateral and dorsal valves, sometimes the pygidium is closed. Legs provided with hairs and bristles, sometimes the femora and tibiæ of the female pennate, sometimes the knees of the male armed. Wings of the female often darker and sometimes broader than of the male, costa stopping at the tip of the wing, auxiliary vein straight and interrupted at the end, third vein always simple, discal cell complete, except that rarely the posterior crossvein is lacking, in some species the discal cell varies with the sex, being extraordinarily large in the female, anal cell short, the crossvein strongly reflexed, anal vein discontinuous with the anal cell, anal angle of the wing large, but variable in size, axillar incision distinct, alula small or wanting, calypteres with a dense fringe.

Rhamphomyia is probably one of the most recent of the genera of Empididae, just as it is the most plastic and in alpine regions the dominant genus. With four hundred species described it has become one of the largest of genera and thus it is desirable that the well known and universally accepted name be maintained and that attempts to seek out and establish prior names be discouraged. In the interest of continuity I have accepted as the type species of *Rhamphomyia*, *sulcata* Meigen, the species selected by Curtis in 1834.

When Coquillett attempted to fix the nomenclature of the Empididæ in 1903 he resurrected Wiedemann's name *Macrostomus* for this genus. Seven years later, in his type species paper of 1910, he made *platyptera* the tautonymic type of *Platyptera* Meigen, 1803, and since this is supposed to be the same as *Dionnæa* Meigen, 1800, he would change the host of species known as *Rhamphomyia* from *Macrostomus* to *Dionnæa*, spp. I have here, following Curtis, adopted *borealis* as the type of *Platyptera*, thus placing it and the questionable *Dionnæa* in the synonymy under *Empis*. Until the Fabrician species *Hybos ferrugineus*, on which Wiedemann founded his genus *Macrostomus*, is rediscovered the name *Macrostomus* may well be kept in abeyance.

The species of *Rhamphomyia* are essentially boreal and seem to be unlimited in their number. Often a species is unusually common for a few days to disappear until the next year. Some species swarm in the open in an aerial dance; these are usually the species of summer or autumn. Others, especially the vernal forms, frequent the deep shade of woods, and may be found about herbage or lazily flying here and there. The genus is unusually plastic in characters, and hence a vast number

of species results. A day's collecting in the haunts of these insects has rarely failed to produce a new form. I have before me several hundred undescribed species of *Rhamphomyia*, and as the number of combinations of possible characters is far from being exhausted, it can be stated that we are just beginning our acquaintance with these interesting species.

Whether *Rhamphomyia* is a monophyletic or a polyphyletic group is unsettled. The trend of evolution in the genus is paralleled to a great degree by species of *Empis*. The pennate structure of the legs of the females, the development of ventral prongs on the abdomen of the male, the structure of his pygidium and of the knee armature, the tendency to holopticism and the reduction or amplification of the bristles may be the result of convergent evolution or may indicate that the various groups of species we call *Rhamphomyia* are offshoots of the subgenera of *Empis*, specialized by a simplification of the third vein. Richard Frey of Helsingfors has recently published a segregation of this complex group into subgenera. His study was based mainly on palæarctic species and accordingly his groups do not adapt themselves as readily to the tropical forms as they do to the nearctic species. The divisions proposed by Dr. Frey are based mainly on the arrangement of the notal bristles, character of axillar incision of the wing, form of pygidium and contiguity of the male eyes. The subgenera are diagnosed below and a list of species assignable to each is given. The list is obviously incomplete, being made up from Frey's paper and such additional species as are before me. Some species, like *R. cyanogaster*, Wh. & M., *pulchriventris*, Bez., *Sauteri*, Bez., and *tolteca*, Wh. & M., do not agree well with the subgenera as defined.

SUBGENUS DASYRHAMPHOMYIA, FREY

Characters. — Males rarely dichoptic, the eyes usually broadly contiguous; ocellar triangle developed; antennæ not excessively lengthened. Body rather stout, usually dull in color, dorsocentrals usually weak and pluriserial, acrostichals present, scutellars many. Pygidium characteristically of two types, either with a long erect vesiculate structure, or small and closed, broadly deformed, with the seventh tergite convex and usually set in the wide sixth tergite, in the latter case armed with two prongs below and the last sternite usually fringed with two bunches of yellow setæ. Legs rather strong, rarely pennate in female, the hind femora rarely setose below. Wings commonly broad and brown in female, axillar incision usually acute.

Type species: *R. vesiculosa*, Fallen. Additional species include: *R. Brussnevi*, Frey, *conservativa*, Mall., *coracina*, Zett., *Hambergi*, Frey, *Hovgaardii*, Holmgr., *mirifica*, Frey, *nigrita*, Zett., *Pohorny*, Bez., *reflexa*, Zett., *vara*, Lw., *vespertilio*, Zett., *virgata*, Coq. and *Wuorelausi*, Frey.

SUBGENUS HOLOCLERA, SCHINER

Characters. — Males holoptic, ocellar triangle and bristles evident; antennæ not greatly lengthened. Small species with slender body, sometimes differing in color in the sexes, sometimes yellow in both male and female; dorsocentrals uniserial, acrostichals present or absent. Pygidium small and closed. Legs slender. Axillar incision of wing ranging from obtuse to rather acute.

Type species: *R. nigripennis*, Fallen. Other species, all from the palæarctic region, include: *R. culicina*, Fall., *flava*, Fall., *flaviventris*, Macq., *heterochroma*, Fab., *pallidiventris*, Fall., *sciarina*, Fall., *tenuirostris*, Fall. and *umbripennis*, Meig.

SUBGENUS LUNDSTROEMIELLA, FREY

Characters. — Males dichoptic, the ocellar triangle not elevated, ocellar bristles very weak; antennæ greatly lengthened, nearly twice as long as the head, the third joint excessively long. Body

delicately built, without evident dorsocentrals and acrostichals, Legs slender. Wings narrow, axillar incision obtuse to rectangular, alulae nearly wanting.

Type species : *R. hybotina*, Zetterstedt. Additional species included in this subgenus are: *R. aterrima*, Frey, *limbipennis*, Bez., *longefilata*, Str., *magellensis*, Bez., *sphenoptera*, Lw. and *tumiditarsis* Old. All of these are palæarctic except *limbipennis*, which comes from South America.

SUBGENUS MEGACYTTARUS, BIGOT

Characters. — Males dichoptic, ocellar triangle and ocellar bristles developed; antennae not abnormally lengthened. Body rather robust, dorsocentrals usually weak and pluriseriate, acrostichals present. Abdominal hairs usually pale or brown, pygidium usually open, with filiform penis. Legs normal, bristles few, not pennate in female. Wings with discal cell of female often greatly enlarged, axillar incision obtuse to rectangular, rarely acute.

Type species : *R. limbata*, Loew. Bigot erected the genus *Megacyttarus* on a female which he described as *argentea*. Coquillett has placed this as a synonym of *limbata*, Lw. It is to this group that Frey gave the subgeneric name *Choreodromia*. The species are mainly characterized by the separated eyes of the males and the abnormally enlarged discal cell of the females. The flies are usually met with in an aerial dance over pools and small streams. Males are usually more abundant than the females, the females often being silvery in color.

Additional species of *Megacyttarus* include: *R. anomala*, Old., *anomalina*, Zett., *anomalipennis*, Meig., *disparilis*, Coq., *fulvolanata*, Frey, *gufilar*, Frey, *hirtipes*, Lw., *irregularis*, Lw., *kamlschatica*, Frey, *liturata*, Lw., *maculipennis*, Zett., *nigripes*, Fab., *notipes*, Fab., *paradoxa*, Wahlb., *scaurissima*, Wh. and *tephræa*, Meig.

SUBGENUS PARARHAMPHOMYIA, FREY

Characters. — Males holoptic, ocellar triangle and bristles developed; antennae not greatly lengthened. Body of regular build, dorsocentrals usually placed in one or two rows, if pluriseriate the thorax is shining black, acrostichals present. Pygidium regularly open, with penis usually filiform. Legs rather strong, often pennate in female. Wings with discal cell normal, axillary incision obtuse to rectangular, rarely acute.

Type species : *R. plumipes*, Fallen. This is the dominant group, abundantly represented in palæarctic and nearctic regions. The following species can be assigned to *Pararhamphomyia*: *R. albata*, Coq., *albipennis*, Fall., *albissima*, Frey, *amoena*, Lw., *anfractuosa*, Bz., *antennata*, Frey, *atra*, Meig., *barypoda*, Coq., *bifilata*, Coq., *bipila*, Str., *breviventris*, Frey, *brevis*, Lw., *candicans*, Lw., *caudata*, Zett., *chibinensis*, Frey, *cinefacta*, Coq., *cineracea*, Coq., *clavator*, Coq., *compta*, Coq., *costata*, Zett., *crassicauda*, Str., *curvula*, Frey, *debilis*, Lw., *dentata*, Old., *dentipes*, Zett., *dimidiata*, Lw., *dispar*, Zett., *diversipennis*, Beck., *effera*, Coq., *euplerota*, Lw., *fascipennis*, Zett., *filata*, Zett., *flexuosa*, Coq., *fuscipennis*, Zett., *fuscata*, Zett., *galactoptera*, Str., *gibba*, Fall., *hilariformis*, Frey, *Helleni*, Frey, *hirtula*, Zett., *impedita*, Lw., *intermedia*, Frey, *kaninensis*, Frey, *leucoptera*, Lw., *limbata*, Lw., *lividiventris*, Zett., *longestylata*, Frey, *longicauda*, Lw., *longipes*, Meig., *lucidula*, Zett., *luteiventris*, Lw., *manca*, Coq., *nana*, Lw., *Nasoni*, Coq., *nitidicollis*, Frey, *niveipennis*, Zett., *novacarolina*, Beut., *nox*, Old., *obscura*, Zett., *omissinervis*, Beck., *ozernajensis*, Frey, *pennata*, Macq., *physoprocta*, Frey, *plumifera*, Zett., *plumipes*, Fall., *polita*, Lw., *poplitea*, Wahlb., *priapululus*, Lw., *pseudogibba*, Str., *pulchra*, Lw., *pusio*, Lw., *pusilla*, Zett., *rufipes*, Zett., *scolopacea*, Say, *serotina*, Old., *setosa*, Coq., *simplex*, Zett., *soccata*, Lw., *subglaucella*, Frey, *subsultans*, Frey, *tarsata*, Meig., *tenuiterfilata*, Beck., *tipularia*, Fall., *truncata*, Frey, *umbilicata*, Lw., *umbripes*, Beck., *unguiculata*, Frey, *ungulata*, Lw., *valga*, Coq., *vittata*, Lw. and *Woldstedti*, Frey.

SUBGENUS RHAMPHOMYIA, S. STR., FREY

Characters. — Males nearly always holoptic, ocellar triangle and bristles evident; antennæ not greatly lengthened. Body rather stout, acrostichals present, dorsocentrals in one or more rows. Pygidium usually small, half-open, penis usually thick and more or less hidden, rarely exposed and filiform. Legs rarely distinctly slender, usually rather robust, the hind femora of both sexes usually bearing bristles or spinules, sometimes in the females without bristles below and in the corresponding males with bristles only at base or middle, legs of females sometimes pennate. Axillar incision of wings acute, the alulae usually well developed.

Type species: *R. sulcata*, Meigen. This group is well represented in palæarctic and nearctic regions. Dr. Frey notes (in litt.) « es ist auffallend, wie viele gelbbeinige *Rhamphomyia*-Arten in Nord-Amerika vorkommen; diese Arten sind wahrscheinlich älter als die schwarzbeinigen Arten ». The following species can be assigned to this subgenus: *R. albosegmentata*, Zett., *alpina*, Zett., *amplipedis*, Coq., *anthracina*, Meig., *argentata*, Roed., *armata*, Beck., *attenuata*, Frey, *avida*, Coq., *basalis*, Lw., *Bezzi*, Frey, *chionoptera*, Meig., *ciliata*, Coq., *cinerascens*, Meig., *clauda*, Coq., *colorata*, Coq., *conformis*, Kow., *corvina*, Lw., *crinita*, Beck., *curvinervis*, Old., *curvipes*, Coq., *discoidalis*, Beck., *fimbriata*, Coq., *gilvipes*, Lw., *glabra*, Lw., *gracilis*, Lw., *grammoptera*, Frey, *lavipes*, Frey, *latifrons*, Str., *longicornis*, Lw., *loripedis*, Coq., *luridipennis*, Now., *macilentia*, Lw., *melania*, Beck., *minytus*, Walk., *modesta*, Wahlb., *montana*, Old., *morio*, Zett., *mutabilis*, Lw., *nitidolineata*, Frey, *nitidula*, Zett., *Oldenbergi*, Frey, *Palméni*, Frey, *parvicellulata*, Frey, *pectinata*, Lw., *phanerostigma*, Frey, *platynemis*, Frey, *propinqua*, Meig., *pulla*, Lw., *quinquelineata*, Say, *rava*, Lw., *ravida*, Coq., *robustior*, Frey, *rustica*, Lw., *Sancti-Mauritii*, Beck., *scitula*, Frey, *scutellaris*, Coq., *serpentata*, Lw., *soccata*, Lw., *sociabilis*, Will., *spectabilis*, Frey, *spinipes*, Fall., *stigmosa*, Macq., *sudigeronis*, Coq., *testacea*, Lw., *tibialis*, Meig., *trilineata*, Zett., *tristriolata*, Now., *umbrosa*, Lw., *ursina*, Old. and *villosa*, Zett.

Geographical distribution.

1. *R. abdominalis*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 433 (1905); Nova Bolivia.
Acta Akad. Naturf. Halle, Vol. 91, p. 323 (1909)
2. *R. *ablata*, Meunier, Ann. Sc. Nat. (Zool.) (9), Vol. 7, p. 92, 114, pl. 9. Baltic Amber.
f. 5, 6 (1908).
3. *R. adversa*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 418 (1900). Alaska.
4. *R. agasicles*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 499 (1849). Canada.
5. *R. albata*, Coquillett, Proc. U. S. Nat. Mus. Vol. 25, p. 103 (1902). Arizona.
6. *R. albidiventris*, Strobl, Glasnik Mus. Bosn. Herceg. Sarajevo, Vol. 10, p. 404 (1898); Mitteil. Bosn. Herceg. Sarajevo, Vol. 7, p. 565 (1900). Bosnia.
7. *R. albipennis*, Fallen, Empid. Suec. p. 30 [1816] (*Empis*); Meigen, Syst. N. & C. Europe, Siberia.
Besch. Vol. 3, p. 59 (1822); Zetterstedt, Dipt. Scand. Vol. 1, p. 408 (1842); Walker, List Dipt. Brit. Mus. Vol. 3, p. 501 (1849); Bondorff, Finl. tvâv. Ins. Dipt. p. 171 (1861); Schiner, Fauna Dipt. Austr. Vol. 1, p. 99 (1862); Becker, Act. Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 24, f. 24, 25 (1900); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 20 (1908); Wahlgren, Ent. Tidskr. Vol. 31, p. 58 (1910); Frey, Notulæ Ent. Vol. 2, p. 41 [1922] (*Pararhamphomyia*).
niveipennis, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 19 (1908).
picipes, Zetterstedt, Dipt. Scand. Vol. 1, p. 410 (1842).
8. *R. albissima*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 17 N. & C. Europe.
(1913); Ent. Tidskr. 1914, p. 78 (1914); Notulæ Ent. Vol. 2, p. 37 [1922] (*Pararhamphomyia*).
niveipennis, Zetterstedt, part, Dipt. Scand. Vol. 1, p. 409 (1842).

9. *R. albogeniculata*, Roser, Correspondenzbl. Landw. Ver. Würtemb. Wuertemburg.
Stuttgart. Vol. 1, p. 53 (1840)
10. *R. albopilosa*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 418 (1900); Alaska.
Malloch, Report Canad. Arct. Exped. 1913-18, Dipt. p. 47 (1919).
11. *R. albosegmentata*, Zetterstedt, Fauna Ins. Lappon. p. 563 [1838] (*Rhamphomyza*); N. & C. Europe.
Dipt. Scand. Vol. 1, p. 393 (1842); ibidem, Vol. 8, p. 3033 (1849); Schiner, Fauna Dipt. Austr. Vol. 1, p. 98 (1862); Siebke, Nyt Mag. Naturvid. Vol. 12, p. 153 (1864); Verrall, Ent. M. Mag. London, Vol. 19, p. 224 (1883); Meijere, Tijdschr. v. Ent. Vol. 50, p. 176 (1907); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 20 (1908); Wahlgren, Ent. Tidskr. Vol. 31, p. 56 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 32 (1913); Notulæ Ent. Vol. 2, p. 74 (1922).
arctica, Zetterstedt, Fauna Ins. Lappon. p. 566 [1838] (*Rhamphomyza*)
morio, Wahlberg, in litt. (not Zetterstedt), Dipt. Scand. Vol. 8, p. 3034 (1849).
12. *R. alipes*, Meigen, Syst. Besch. Vol. 3, p. 45 (1822); Macquart, Hist. C. Europe.
Nat. Dip. Vol. 1, p. 339 (1834); Boitard, Man. Ent. Vol. 3, p. 320 (1843).
13. *R. alpina*, Zetterstedt, Fauna Ins. Lappon. p. 565 [1838] (*Rhamphomyza*); N. Europe, Siberia.
Dipt. Scand. Vol. 1, p. 416 (1842); ibidem, Vol. 8, p. 3041 (1849); Siebke, Nyt Mag. Naturvid. Vol. 12, p. 154 (1864); Becker, Acta Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 22, f. 20, 21 (1900); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 19 (1908); Wahlgren, Ent. Tidskr. Vol. 31, p. 58 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 34 (1913); Notulæ Ent. Vol. 2, p. 71 (1922).
14. *R. americana*, Wiedemann, Aussereur. Zweifl. Ins. Vol. 2, p. 8 (1829); North America.
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 413 (1895).
15. *R. amœna*, Loew, Bemerk. Posen. Gegend Art. Zweifl. Gatt. p. 21 (1840); Germany.
Isis, Vol. 7, p. 548 (1840); Schiner, Fauna Dipt. Austr. Vol. 1, p. 101 (1862); Frey, Notulæ Ent. Vol. 2, p. 38 [1922] (*Pararhamphomyia*).
setigera, Stein, Wien. Ent. Zeit. Vol. 9, p. 108 (1890)
16. *R. amplicella*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 431 (1895). California.
17. *R. amplipedis*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 422 (1895); E. United States.
Frey, Notulæ Ent. Vol. 2, p. 68 (1922).
18. *R. anaxo*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 500 (1849). Canada.
19. *R. andalusiaca*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 12 (1899). Spain.
20. *R. anfractuosa*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 199 (1904); Olden- Hungary.
berg, Arch. Naturg. (Berlin), p. 83, A, 6, 18 (1919); Frey, Notulæ Ent. Vol. 2, p. 35, 36 [1922] (*Pararhamphomyia*).
21. *R. angulifera*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 15 Finland.
(1913); Notulæ Ent. Vol. 2, p. 36 [1922] (*Pararhamphomyia*).
22. *R. *angusta*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 93, 119, pl. 9, Baltic Amber.
f. 15, 16; ibidem, pl. 10, f. 12 (1908).
23. *R. angustipennis*, Loew, Berl. Ent. Zeitschr. Vol. 5, p. 336 : Cent. 1, No. 55 E. United States.
(1861); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 414 (1895).
24. *R. anomala*, Oldenberg, Arch. Naturg. Berlin, Vol. 80, 9, p. 77 (1915); Germany.
Frey, Notulæ Ent. Vol. 2, p. 8, 10 [1922] (*Choreodromia*).
25. *R. anomalina*, Zetterstedt, Fauna Ins. Lappon, p. 563 [1838] (*Rhamphomyza*); N. Europe, Siberia.
Dipt. Scand. Vol. 1, p. 391 (1842); ibidem, Vol. 13, p. 5010 (1859); Becker, Act. Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 16, f. 6 (1900); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 18 (1908); Wahlgren, Ent. Tidskr. Vol. 31, p. 55 (1910); Frey, Acta

- Soc. Fenn. Helsingfors, Vol. 37 (3), p. 11 (1913); Oldenberg, Arch. Naturg. Berlin, Vol. 80, 9, p. 79 (1915); Frey, Notulæ Ent. Vol. 2, p. 8, 9 [1922] (*Choreodromia*).
26. *R. auomalipennis*, Meigen, Syst. Besch. Vol. 3, p. 55, pl. 23, f. 4 (1822); Zetterstedt, Dipt. Scand. Vol. 1, p. 411 (1842); ibidem, Vol. 13, p. 5016 (1859); Coquillett, Proc. Wash. Ent. Soc. Vol. 5, p. 249 (1903); Wahlgren, Ent. Tidskr. Vol. 31, p. 56 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 12 (1913); Oldenberg, Arch. Naturg. Berlin, Vol. 80, 9, p. 81 (1915); Frey, Notulæ Ent. Vol. 2, p. 8, 10 [1922] (*Choreodromia*).
hyalipennis, Stephens, Cat. Brit. Ins. Vol. 2, p. 264 [1829] (*Enicopteryx*), no description.
27. *R. antennata*, Frey, Mém. Acad. Sc. Russ. Vol. 29 (10), p. 9 (1915); Notulæ Ent. Vol. 2, p. 44 [1922] (*Pararhamphomyia*). N. Siberia.
28. *R. anthracina*, Meigen, Syst. Besch. Vol. 3, p. 54 (1822); Loew, Isis, Vol. 7, p. 547, Bemerk. Posen. Gegend Art. Zweifl. Gatt. p. 20 (1840); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 55 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 100 (1862); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 113 (1887); Strobl, Mitteil. Naturf. Ver. Steiermark, Graz, Vol. 29, p. 51 (1892); Czizek, Zeitschr. Mähr. Landesmus. Brünn, Vol. 7, p. 165 (1907); Oldenberg, Arch. Naturg. Berlin, Vol. 83, A. 6, p. 24 (1919); Frey, Notulæ Ent. Vol. 2, p. 76 (1922). C. Europe.
alpestris, Schummel, Arb. Veränd. Schles. Ges. p. 189 (1843)
 ? Loewi, Nowicki, Verh. Naturf. Ver. Brünn, Vol. 6, p. 78 [1869] (*Löwi*); Mik, Fauna Hernst. Vol. 2, p. 2, 56 (1885); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 113, 119 (1887).
29. *R. anthracinella*, Strobl, Glasnik. Mus. Bosn. Herceg. Sarajevo, Vol. 10, p. 405 (1898); Mitteil. Bosn. Herceg. Sarajevo, Vol. 7, p. 566 (1900). Bosnia.
30. *R. anthracodes*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 420 (1900). Alaska.
- *R. * antipedalis*, Loew, Bernsteinfauna p. 41 (1850) no description; Giebel, Ins. Vorwelt, p. 208 (1866) no description. Baltic Amber, Lower Oligocene.
31. *R. aperta*, Loew (not Zetterstedt), Berl. Ent. Zeitschr. Vol. 6, p. 199: Cent. 2, No. 27 (1862); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 418 (1895). C. United States.
32. *R. apicalis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 330 (1909). Peru.
33. *R. aprilis*, White, Proc. Roy. Soc. Tasmania, 1916, p. 238, f. 46 (1917). Tasmania.
34. *R. arcuata*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 421 (1895). Massachusetts.
35. *R. arcuicincta*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 331 (1909). South America.
36. *R. argentata*, Roeder, Wien. Ent. Zeit. Vol. 6, p. 113 (1887); Frey, Notulæ Ent. Vol. 2, p. 73 (1922). C. Europe.
37. *R. argyrina*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 334 (1909). Bolivia.
38. *R. argyrotarsis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 324, f. 2 (1909). Bolivia.
39. *R. armata*, Becker, Mém. Acad. Sc. Petrograd, Vol. 28 (7), p. 56, f. 2 (1915); Frey, Notulæ Ent. Vol. 2, p. 69 (1922). W. Siberia Tundra.
40. *R. armimana*, Oldenberg, Ann. Mus. Hungar. Vol. 8, p. 346, f. 1 (1910). C. Europe.
41. *R. aterrima*, Frey, Notulæ Ent. Vol. 2, p. 5 [1922] (*Lundstroemiella*). Alps.
 ? *nigripes*, Strobl (not Fabricius), Mitteil. Naturf. Ver. Steiermark, Graz, Vol. 34, p. 198 (1897); ibidem, Vol. 46, p. 58 (1909).
42. *R. atra*, Meigen, Syst. Besch. Vol. 3, p. 45 (1822); Macquart, Hist. Nat. Dipt. Vol. 1, p. 339 (1834); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 55 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 99 (1862); Jaroschewsky, Arb. Ges. Naturf. Univ. Kharkow, Vol. 11, p. 353 (1877); Frey, Notulæ Ent. Vol. 2, p. 43 [1922] (*Pararhamphomyia*). C. Europe.
43. *R. atrata*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 419 (1900). Alaska.

44. *R. attenuata*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 33 (1913); Ent. Tidskr. 1914, p. 79 (1914); Notulæ Ent. Vol. 2, p. 73 (1922). N. & C. Europe.
45. *R. aucta*, Oldenberg, Arch. Naturg. Berlin, Vol. 82, 1, p. 157 (1916). Tyrol.
46. *R. avida*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 425 (1895). Massachusetts.
47. *R. barypoda*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 417 (1900). Alaska.
48. *R. basalis*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 77 : Cent. 5, No. 54 (1864); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 410 (1895). E. United States.
49. *R. Bezzii*, Frey, Notulæ Ent. Vol. 2, p. 74 (1922). Italy.
50. *R. bibioniformis*, Oldenberg, Arch. Naturg. Berlin, Vol. 83, A, 6, p. 25 (1919). Austria.
51. *R. bicolor*, Macquart (not Wiedemann), Mém. Soc. Sc. Lille, p. 163 [1823] (*Empis*); Dipt. N. France, Vol. 3, p. 135 (1827); Hist. Nat. Dipt. Vol. 1, p. 338 (1834); Meigen, Syst. Besch. Vol. 7, p. 92 (1838). France.
52. *R. bicolor*, Wiedemann (not Macquart), Aussereur. Zweifl. Ins. Vol. 2, p. 8 (1829); Macquart, Dipt. Exot. Vol. 1, 2, p. 164 (1838); Oldenberg, Arch. Naturg. Berlin, Vol. 83, A, 6, p. 26 (1919). Locality unknown.
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54. *R. bilineata*, Meigen, Classif. Besch. Eur. Zweifl. Ins. Vol. 1, p. 230 (1804); Syst. Besch. Vol. 3, p. 56 (1822). C. Europe.
55. *R. bipila*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 171 (1909); Frey, Notulæ Ent. Vol. 2, p. 45 [1922] (*Pararhamphomyia*). Spain.
56. *R. Biroi*, Bezzi, Ann. Mus. Hungar. Vol. 6, p. 392 (1908). Crete.
57. *R. boliviana*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 429 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 322 (1909). Bolivia.
58. *R. brevis*, Loew, Berl. Ent. Zeitschr. Vol. 5, p. 334 : Cent. 1, No. 52 (1861); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 414 (1895). E. United States.
59. *R. breviventris*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3) p. 21 (1913); Ent. Tidskr. 1914, p. 78 (1914); Not. Ent. Vol. 2, p. 39, 40 [1922] (*Pararhamphomyia*). Sweden, Finland, Siberia.
60. *R. Brusewiltzii*, Holmgren, Spec. Ins. N. Semlia, p. 20 (1880); Ent. Tidskr. Vol. 4, p. 163 (1883). Nova Zemla.
var. *anomalinervis*, Frey, Mém. Acad. Sc. Russ. Vol. 29 (10), p. 11 (1915). Arctic Siberia.
61. *R. Brussewiti*, Frey, Mém. Acad. Sc. Russ. Vol. 29 (10), p. 10 (1915); Dipt. Sarekgebiet, p. 684 (1916); Notulæ Ent. Vol. 2, p. 67 [1922] (*Dasyrhamphomyia*). N. Siberia.
62. *R. caesia*, Wiedemann-Meigen, Syst. Besch. Vol. 3, p. 56 (1822); ibidem, Vol. 6, p. 339 (1830); Macquart, Hist. Nat. Dipt. Vol. 1, p. 338 (1834); Roser, Correspondenzbl. Landw. Ver. Würtemb. Stuttgart, Vol. 1, p. 53 (1840); Walker, List Dipt. Brit. Mus. Vol. 3, p. 501 (1849); Ins. Brit. Vol. 1, p. 109 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 101 (1862); Oldenberg, Arch. Naturg. Berlin, Vol. 63, A, 6, p. 19 (1919). C. & N. Europe.
schistacea, Meigen, Syst. Besch. Vol. 3, p. 57 (1822).
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64. *R. calvimontis*, Cockerell, Canad. Ent. Vol. 48, p. 123 (1916). Colorado.
65. *R. cana*, Zetterstedt, Dipt. Scand. Vol. 8, p. 3043 (1849); ibidem, Vol. 11, p. 4272 (1852); Lundbeck, Dipt. Danica, Vol. 3, p. 78 (1910). Denmark.
66. *R. canaliculata*, Macquart, Dipt. N. France, Vol. 3, p. 131 (1827); Hist. Nat. Dipt. Vol. 1, p. 335 (1834); Meigen, Syst. Besch. Vol. 7, p. 90 (1838); Gimmerthal, Bull. Soc. Nat. Moscou, Vol. 15, p. 666 (1842); Boitard, Man. Ent. Vol. 3, p. 319 (1843). France.
67. *R. candicans*, Loew, Berl. Ent. Zeitschr. Vol. 7, p. 81 : Cent. 5, No. 61 (1864); Coquillett, Proc. U. S. Nat. Mus. Vol. 18 p. 412 (1895). E. United States.
68. *R. carbonaria*, Wiedemann-Meigen, Syst. Besch. Vol. 3, p. 59 (1822); Walker, List Dipt. Brit. Mus. Vol. 3, p. 503 (1849); Zetterstedt, Dipt. Scand. Vol. 13, p. 5018 (1859). N. Europe.

69. *R. carenifera*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 338 (1909). Chile.
70. *R. caudata*, Zetterstedt, Fauna Ins. Lappon. p. 565 (1838); Dipt. Vol. 1, p. 417 (1842); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 172 (1861); Boheman, Oefv. Akad. Foerh. Stockholm, p. 570 (1865); Holmgren, Svensk. Akad. Handl. Stockholm, Vol. 8, p. 26 (1876); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 19 (1908); Wahlgren, Ent. Tidskr. Vol. 31, p. 59 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 27 (1913); Notulæ Ent. Vol. 2, p. 42 [1922] (*Pararhamphomyia*).
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SUBFAMILY CLINOCERATINÆ

Characters. — Head globose, the eyes separated, their facets small; antennæ short, located above the middle of the head, three-jointed, the third joint oval, conical or onion-shaped, rarely lengthened, the arista almost always much longer than the third joint; proboscis shorter than the head, extending down from the lowest part of the head, usually fleshy and thick, but sometimes sharp and chitinized, palpi small and incumbent on the proboscis, except in *Synamphotera*. Thorax narrow and elongate, the mesonotum flattened in front of scutellum, almost always with macrochaetæ on the disk, never pilose, metapleuræ often bearing a cluster of fine hairs. Genitalia of the male of the form of either a pygidium or an epipygium, bilateral; no ovipositor. Legs slender, nowhere thickened, unarmed, but rarely the front femora may bear flexor setulæ, which however are never arranged as definite rows of denticles. In *Ceratomerus*, whose position is questionable, the middle femora of the male bear apophyses. Wings cuneiform, no anal angle developed, costa encompassing the entire wing, neuration complete, basal cells small, third vein forked or not, petiole of the second and third veins arising nearer the humeral crossvein than to the anterior, anal vein reduced or absent, anal crossvein variable, sometimes perpendicular, sometimes rounding into the underside of the anal cell, stigma absent or very weak, but in *Wiedemannia* distinct.

TABLE OF THE GENERA OF THE CLINOCERATINÆ

- A. *Antennæ inserted at the middle of the head, the third joint conical with a rather short style which terminates in a bristle-like segment; face not constricted from the cheeks by a suture; eyes bare; no ocellar tubercle; proboscis short, sharp, chitinous and incurved; anal crossvein when present perpendicular to the anal vein; bristles never strong, no humeral bristle, metapleuræ bare; legs yellowish* 2.
- B. *Antennæ with the third joint remarkably lengthened, without evident style; face not constricted from the cheeks by a suture; eyes bare; no ocellar tubercle; proboscis short and fleshy; bristles well developed including the humeral, metapleuræ setulose; dorsal valves of pygidium erect, end valves abruptly bent downward; anal crossvein rectangularly curving, third vein furcate* 4.
- C. *Antennæ inserted above the middle of the head, the third joint usually with a lengthened arista; oral margin of the cheeks with a more or less distinct incision or suture extending toward the eyes; eyes usually densely pubescent; proboscis usually short, vertical, soft and haustellate; anal cell usually rounded at the tip; bristles of the body always well developed, metapleuræ usually bearing hairs; body dark and legs largely or wholly black, except in Roederioides* 5.
2. *Anal cell wanting, discal cell apically open, the second posterior cell with a long petiole, first vein ending before the middle of the wing, third vein furcate; middle femora ♂ with an apophysis on the anterior surface; antennæ elongate, the first joint as long as the head. (Pl. 7, Fig. 67)* Genus CERATOMERUS, Philippi.
- Anal cell present, discal cell complete, second posterior cell sessile, second basal cell long; legs slender, without armature or bristles; antennæ not longer than the head, the first joint small* 3.
3. *Third vein not furcate, anal vein distinct from the under side of the anal cell and incomplete, auxiliary vein evanescent; about ten small dorsocentral bristles, one supraalar, four scutellar, ocellar and vertical bristles present; costa with a basal bristle present; pygidium terminal; present; third antennal joint lanceolate. (Pl. 3, Fig. 20)* Genus BOREODROMIA, Coquillett
- Third vein furcate, anal vein continuous with the underside of the anal cell and complete to the margin, auxiliary vein attaining the costa; head, thorax and costa without bristles; epipygium tumid and reflexed; third antennal joint ovate. (Pl. 3, Fig. 23)* Genus SYNAMPHOTERA, Loew.
4. *Antennæ inserted above the middle of the head, the third segment tipped with minute peg-like joint; a row of acrostichals;*

- pygidium with cruciate terminal sharp processes. (Pl. 3, Fig. 21)* Genus NIPHOGENIA, nov. gen.
- Antennæ inserted below middle of head, no trace of apical style; no acrostichals; pygidium without cruciate terminal processes. (Pl. 3, Fig. 22)* Genus CERATEMPIS, nov. gen.
5. *Third vein simple; opaque black species with black legs and halteres* 6.
- Third vein branched* 7.
6. *Anal crossvein greatly reflexed, nearly parallel with the axis of the wing, first vein ending before the middle of the wing, costa with setulæ; proboscis very short, haustellate; face broad; eyes pubescent, the lower facets enlarged; bristles strong, post-humeral and intraalar bristles present, metapleuræ with a bunch of hairs; epipygium small and reflexed; front femora with flexor thorn-like spines, empodium and pulvilli long. (Pl. 2, Fig. 17)* Genus OREOTHALIA, Melander.
- Anal crossvein perpendicular to the axis of the wing, the first vein ending beyond the middle of the wing, costa without setulæ; proboscis nearly as long as the head, pointed; face narrow; eyes bare, facets uniform; bristles weak, posthumeral and intraalar wanting, metapleuræ bare; pygidium globose and terminal; femora not spinose, empodium and pulvilli minute. (Pl. 7, Fig. 68)* Genus HELEODROMIA, Haliday.
7. *Fourth vein arising near the base of the anal cell, the second basal cell therefore as long as the anal cell, auxiliary vein evanescent apically, anal crossvein strongly recurved* 8.
- Fourth vein arising near the end of the basal third of the anal cell, the second basal cell therefore shortened, auxiliary vein ending in the costa; femora never incrassate; metapleuræ with hairs* 10.
8. *Eyes of both sexes contiguous on the face and pubescent; third joint of the antennæ greatly lengthened and continuous with the arista; proboscis slender, nearly as long as the head; front coxæ half as long as their femora; calypteres without fringe; metapleuræ bare. (Pl. 7, Fig. 69)* Genus TRICHOPEZA, Rondani.
- Eyes distinctly separated; third joint of the antennæ conical or oval, with a distinct thickened arista; proboscis thick* 9.
9. *Front femora thickened, spinose at the base and four times as long as their coxæ; proboscis as long as the head; metapleuræ bare* Genus DIPSONYIA, Bezzi.
- Femora slender, not spinose; proboscis short; eyes bare; metapleuræ with a row of setæ. (Pl. 7, Fig. 65; Pl. 8, Fig. 75)* Genus PROCLINOPYGA, nov. gen.
10. *Proboscis as long as the head, slender, pointed, rigid, somewhat inflexed, without labella; cheeks rostriform; brownish species with yellow legs; epipygium reflexed and with a ventral keel. (Pl. 2, Fig. 19)* Genus ROEDERIOIDES, Coquillett.

- Proboscis usually short, thick, fleshy, not inflexed; cheeks usually narrow; black or blackish species* 11.
11. *Head articulated to the thorax high up on the occiput, extending obliquely forward; small species, body shining or subshining; prosternum as long as the mesosternum, legs yellowish, pulvilli vestigial; no trace of anal vein* 12.
- Head articulated nearer the center of the occiput, hanging vertically; prosternum shorter than the mesosternum; wings narrow, usually hyaline, with or without nebulous markings, veins rarely undulating; legs usually wholly or in large part black or blackish; large species, body opaque* 13.
12. *Wings maculate with lighter spots on a dark ground, veins undulating, three submarginals; empodium present; body more or less pollinose. (Pl. 3, Fig. 24)* Genus *DOLICHOCEPHALA*, Macquart.
- Wings broad, hyaline, not maculate, veins not undulating, two submarginals; empodium vestigial; body entirely shining, without pollen: cavernicolous. (Pl. 7, Fig. 64)* Genus *LAMPOSOMA*, Becker.
13. *Face separated from the lower occiput by an incision on the cheeks that extends to the eye; face not descending beneath the eyes; no acrostichals* Genus *CLINOCERA*, Meigen 14.
- Cheeks broader, without such a deep incision, the face fusing with the lower occiput and extending more or less beneath the level of the eyes, its front margin deeply emarginate or impressed and carinate; stigma more or less developed, discal cell sharp apically, acrostichals usually abundant* Genus *WIEDEMANNIA*, Zetterstedt. 18.
14. *Pulvilli and empodium vestigial, much shorter than the claws; dorsocentrals sometimes numerous; stigma present; large species* Subgenus *BERGENSTAMMIA*, Mik.
- Pulvilli and empodium present, the latter at least as long as the claws; at most five or six dorsocentrals, two scutellars.* 15.
15. *Lower edge of the face straight across; stigma wanting or weak; costal setulæ minute* 16.
- Oral margin of the face with a median excision or depression; discal cell blunt at the tip.* 17.
16. *Discal cell rather sharp apically; wings not or scarcely spotted; front femora of male with flexor bristles. (Pl. 2, Fig. 18).* Subgenus *CLINOCERA*, s. str.
- Discal cell rather blunt apically; wings spotted with nebulous marks on the crossveins, etc.; sometimes three submarginal cells; front femora of both sexes with flexor bristles or spines.* Subgenus *HYDRODROMIA*, Macquart.
17. *Face with a few scattered hairs beneath the antennæ; stigma poorly developed, wings not spotted; front femora with preapical comb of setulæ on inner side* Subgenus *KOWARZIA*, Mik.
- Face entirely bare; stigma and nebulous spottings more or less developed; front femora with three or four preapical setulæ on inner side* Subgenus *PHÆOBALIA*, Mik.

18. *Face projecting more than half the eye-height below the eyes.* 19.
Face projecting less than half the eye-height below the eyes 21.
19. *Stigma large and more or less circular, located much beyond the end of the first vein, the second vein curving beneath the stigma, sometimes a clouding from the stigma extending below the second vein; five or six dorsocentrals with rather long alternate bristles; scutellum with discal setulae* Subgenus *WIEDEMANNIA*, s. str.
Stigma elongate, beginning at end of first vein and not touching second vein 20.
20. *Eyes round; face in profile quadrangular* Subgenus *CAMELOPIS*, Engel.
Eyes oval, longer than wide; face tapering below Subgenus *CLINOCERELIA*, Engel.
21. *Stigma rounded, beginning much beyond end of first vein; alternate weak dorsocentrals present* Subgenus *PSEUDOWIEDEMANNIA*, Engel.
Stigma elongate, beginning at end of first vein 22.
22. *All femora bearing strong anterior and posterior preapical bristles; costal spines strongly projecting; acrostichals if present proclinate* Subgenus *EUCELIDIA*, Mik.
Femora without distinct preapical bristles but sometimes with short preapical setae; costal setulae not strongly projecting, usually minute and inclined 23.
23. *Front femora with an oblique comb of about five setulae just before the knee on the inner side; acrostichals short and weak, only the anterior ones present; only the strong dorsocentrals present; scutellum with marginal setulae in addition to the pair of bristles* Subgenus *ROEDERELIA*, Engel.
Front femora without comb of setulae near knee; alternating smaller dorsocentrals present; acrostichals forming a complete row, reclinate in front and proclinate in back 24.
24. *Front femora with about four distinct setae at apical third of inner side; scutellum rarely bearing more than the apical pair of bristles; arista usually blunt* Subgenus *CHAMAEDIPSIA*, Mik.
Front femora devoid of pronounced setulae within; scutellum with setulae Subgenus *PHILOLUTRA*, Mik.

I. GENUS *CERATOMERUS*, PHILIPPI

Ceratomerus, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 766 (1865); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 124 (1889); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 300 (1909); Kertész, Cat. Dipt. Vol. 6, p. 111 (1909).

Characters. — Brownish species with infumated wings whose venation is similar to that of *Hemerodromia*, with lengthened antennae and in the male with deformed legs. Head globular; antennae inserted at the middle of the head, the first antennal joint as long as the head, the second joint short, the third joint elongate oval, its arista about one-half as long as this joint. Proboscis perpendicular, twice as long as the head, palpi retracted. Abdomen cylindrical, attenuated before the tip, the apex

inflated in the male. Legs slender, front femora with a hooklike tooth at the base, the front tibiæ tuberculate below the knee and hairy, middle femora armed with a large apophysis a little beyond the middle on the upper anterior face, directed forward and bispinose at its tip, beneath with a fascicle of hairs and with three bristles, middle tibiæ biseriately ciliate, hind tibiæ dilated apically and produced as a lobe beyond the insertion of the tarsus, pubescent but not ciliate. Female unknown.

Type species : the South American *C. paradoxus*, Philippi, which has not been found since its original discovery in 1865. This fly is well named for it is impossible to assign its systematic position with satisfaction. I take it that the slender legs and shortened front coxæ bespeak a relationship with the Clinoceratinæ, and that the *Hemerodromia*-like neuration is the result of parallel evolution.

Geographical distribution.

1. *C. paradoxus*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 766, pl. 28. Chile. f. 46 (1865). — **Pl. 7, Fig. 67.**

2. GENUS BOREODROMIA, COQUILLET

Boreodromia, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 247, 260 (1903); ibidem, p. 264 [1903] (*Boreomyia*); Aldrich, Cat. Dipt. p. 316 [1905] (*Boreomyia*); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Kertész, Cat. Dipt. Vol. 6, p. 119 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 515 (1910).

Synamphotera, Melander (not of Loew, 1858), Trans. Amer. Ent. Soc. Vol. 28, p. 231 (1902).

Characters. — Brownish species, measuring three millimeters in length. Head globular, occiput shallowly convex, below with sparse hairs, above with setæ and two vertical bristles; ocelli placed well up on the vertex, one pair of ocellar and two pairs of lesser ocellar bristles; sides of the front broadly diverging, of the face parallel, cheeks linear, mouthopening very small; eyes bare, the incision at the antennæ broad and shallow, lower facets becoming larger; antennæ inserted below the middle of the head, three-jointed, the third joint conical, microscopically hairy, the arista half as long as the third joint, three-jointed, the basal joint small, the terminal joint thin and half as long as the intermediate; proboscis short, rigid, somewhat incurved, the fleshy labella half as long as the proboscis, palpi obliquely descending, two-jointed, slender, hairy. Thorax quadrate, not greatly convex but without depressed prescutellar area, pollinose, not pubescent nor setulose, no humeral bristle, one notopleural, one postalar, four scutellar, about ten dorsocentrals, none large, no acrostichals; pleuræ bare, no pectal bristle. Abdomen compressed, not tapering, comprising eight segments; pygidium small, terminal, upper valves spatulate and erect, middle valves corneous and directed forward, central filament hidden; no ovipositor. Legs slender, unarmed, hairy but without bristles, setæ or spurs, front coxæ one and two-thirds times as long as the posterior pairs, apex of hind tibiæ closely fimbriate, pulvilli small. Wings cuneiform, narrow at the base, no anal angle or alula, costa encompassing the entire wing, a basal costal bristle, the costa biseriately hairy, auxiliary vein straight, evanescent at the tip, closer to the first vein than to the costa, humeral crossvein before the base of the second basal cell, second vein long, third vein not forked, its pedicel arising near the middle of the second basal cell, discal cell complete, emitting three veins, second posterior cell sessile, anal cell short, anal crossvein recurved around the back of the anal cell and separate from the ciliate margin, the anal vein represented by a fold which starts behind the anal cell.

Type species : *B. bicolor*, Loew (Pl. 3, Fig. 20), Coquillett's designation. This species occurs along the Pacific coast from Alaska to the State of Washington. It may be that Bigot's *Clinocera maculipes*, a species with yellow antennæ, halteres and legs, may belong here.

Geographical distribution.

1. *B. bicolor*, Loew, Berl. Ent. Zeitschr. Vol. 7, p. 18 : Cent. 3, No. 34 W. North America. [1863] (*Synamphotera*); Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 423 [1900] (*Synamphotera*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 231 [1902] (*Synamphotera*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 247 (1903). — **Pl. 3, Fig. 20.**
2. *B. ? maculipes*, Bigot, Bull. Soc. Zool. France, Vol. 12, p. 118 [1887] California. (*Clinocera*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 245 [1902] (*Clinocera*); Engel, Deutsche Ent. Zeitschr. 1918, p. 35 [1918] (*Clinocera*).

3. GENUS SYNAMPHOTERA, LOEW

Synamphotera, Loew, Zeitschr. Ges. Naturw. Vol. 11, p. 454 (1858); Syst. Besch. Vol. 2, p. 255 (1871); Roeder, Wien. Ent. Zeit. Vol. 6, p. 169 (1887); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 120 (1889); Williston, Man. N. Amer. Dipt. p. 75 (1896); Melander, Williston Man. N. Amer. Dipt. p. 222 (1908); Lundbeck, Dipt. Dan. Vol. 3, p. 226 (1910).

Dryodromia, Rondani, Dipt. Ital. Vol. 1, p. 150 [1856] (*Dryodromia* and *Driedromyia*); Mik, Ent. Nachr. Berlin, Vol. 12, p. 324 (1886); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 248 (1903); Kertész, Cat. Dipt. Vol. 6, p. 119 (1909); Engel, Deutsche Ent. Zeitschr. 1918, p. 3 (1918).

Characters. — An entirely yellow, bristleless insect with short antennæ and full neuration. Head globular, eyes moderately large, round, bare, facets uniform, no excision at the antennæ, well separated on the front and face in both sexes; cheeks linear, epistome long, face extremely short; proboscis shorter than the head, vertical, chitinous, tubular, the palpi long, projecting straight forward, cylindrical and hairy in the female, compressed in the male, in which sex they are conspicuous; antennæ located well down on the head, the basal two joints shorter than broad, the third joint short ovate, rather broad, and with a stumpy two-jointed terminal style which is tipped with a short bristle. Thorax moderately large, pollinose, without bristles, the scutellum with a few marginal setulæ, prothorax short. Abdomen nearly bare; epipygium reflexed and large, penis very thick, two pairs of erect side valves; ovipositor conical, erect. Legs rather slender, without bristles, spurs or setæ, front coxæ one-half as long as the femora and slightly longer than the posterior coxæ, pulvilli moderate, empodium bristle-like, minute. Wings with narrowed base, axillary angle very blunt, costa continuing around the wing, no basal bristle, no costal setulæ, stigma very faint, auxiliary vein attaining the costa, first vein ending beyond the middle of the wing, third vein forked and normally the upper branch angulate and connected with the second vein by an extra crossvein, discal cell complete and long, posterior cells sessile, anal crossvein slightly reflexed and recurved, abruptly ending in the complete anal vein which meets the wing-margin, the anal cell a little shorter than the second basal, fourth vein arising near the base of the anal cell, a fold present beneath the humeral crossvein, marginal cilia and costal hairs very short. The crossveins at the end of the wing are quite unstable, additional ones may be present or the normal one absent.

Taxonomy : In the analytical key to the genera of Empidina of his Prodrömus of the Italian Diptera, Rondani established the genus *Dryodromia*, citing but not describing the species *testacea*. Coquillett was of the opinion that Rondani's species was *Hilara tenella* Fallen, with a supernumerary

crossvein. Although such aberrant specimens may be rare in the genus *Hilara*, so as to make it doubtful if Coquillett's conclusion is correct, yet his supposition is plausible enough to warrant the retention of the better-known name *Synamphotera* for this genus. Anyway, Rondani's species *testacea* was tabulated *sine descriptione* and would give way to Loew's well described *pallida*. Mik referred *Dryodromia* to *Tachypeza* in the reference above given.

Type species : *S. pallida*, is the only known form. It occurs in Europe and is considered rare. Its earlier stages are not known.

Geographical distribution.

1. *S. pallida*, Loew, Zeitschr. Ges. Naturw. Vol. 11, p. 455 (1858); Syst. C. & S. Europe. Beschr. Vol. 2, p. 253 (1871); Lundbeck, Dipt. Danica, Vol. 3, p. 227, f. 95-97 (1910); Collin, Ent. Mag. London, Vol. 24 (2), p. 106 (1913), — **Pl. 3, Fig. 23.**

testacea, Rondani, Dipt. Ital. Vol. 1, p. 150 [1856] (*Dryodromia*), table name:
Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 248 (1903), as syn. of *Hilara tenella*, Fall.

4. GENUS NIPHOGENIA, NOV. GEN.

Characters. — Slender insects with lengthened antennæ. Head globose, eyes round, bare, facets uniform, face wide and convex, particularly so in the female, continuous with the small cheeks, its lower edge straight; front broad, half as long as the face, setulose above antennæ, ocellar triangle scarcely elevated, ocellar bristles reaching two-thirds the way to the antennæ, no vertical bristles but the uppermost occipital setæ bristle-like; first antennal joint more than twice as wide as the globose second, both joints loosely setulose, third joint as long as the head, slightly tapering, loosely pubescent, tipped by a microscopic setula; proboscis short and thick, palpi pendent. Thorax with full rows of uniseriate uniform dorsocentrals and acrostichals, several humeral bristles, and one each of intrahumeral, posthumeral, notopleural, supra-alar, intra-alar and postalar bristles, two scutellars, metapleuræ bearing a cluster of setulæ; prescutellar area not depressed. Abdomen cylindrical, seven segments before the pygidium, loosely setose, showing small pittings arranged across base of second segment and in pairs on sides of the segments; pygidium globular, not widening the abdomen, dorsal valves erect, terminal valves abruptly bent vertically down and flat, terminal processes long, slender, pointed and decussate, penis erect. Legs slender, not bristly, coxæ loosely setose, tarsi longer than their tibiæ, pulvilli small, empodium microscopic but fleshy. Wings normal, anal angle not projecting, costa encompassing entire wing, costal bristle present, auxiliary vein evanescent before the anterior crossvein, second vein long, third vein forked, discal cell complete, emitting three veins, anterior crossvein at two-fifths the length of the discal cell, the first basal cell therefore much longer than the second, anal crossvein arising rectangularly and uniformly curving into the lower side of the anal cell, no anal vein, fold in wing-membrane at root of second basal cell visible but not pronounced; calypteres with nearly straight edge and weak fringe.

Genotype : *N. eucera*, nov. sp.

Geographical distribution.

1. *N. eucera*, nov. sp. (1). — **Pl. 3, Fig. 21.**

Washington.

(1) ***Niphogenia eucera***, nov. sp. (**Pl. 3, Fig. 21**). — Length 3 mm. Piceous black, covered with brown-gray but not heavy pollen. Antennæ entirely black, the pubescence of the third joint brown. About ten bristles in dorsocentral row and eight acrostichals. Eighth segment of female abdomen edged with numerous setæ, eighth sternite of male with long

5. GENUS CERATEMPIS, NOV. GEN.

Characters. — Male. Head spherical, eyes round, low-set, obliterating the cheeks, widely separated on both front and face, facets nearly uniform and rather large; a single orbital bristle opposite antennæ, ocelli large, ocellar bristles pronounced, upper occipital bristles well developed; first antennal joint cylindrical, twice as long as wide, with a few apical setulæ above, second joint globose, with a whorl of setulæ, third joint excessively long, being twice as long as the head, very slightly tapering to the blunt tip, heavily pubescent; proboscis minute, fleshy, palpi single-jointed, directed forward and bearing two inferior setulæ.

Thorax normal, the notal bristles well developed, including one humeral, post-humeral, presutural, notopleural, two intraalar, one postalar, a complete row of dorsocentral and apical scutellar pair, metapleuræ with a vertical row of five setulæ.

Abdomen loosely setose, not pitted, showing six compressed segments, the genitalia erect, with narrow central piece, the base of which is overlaid by a pair of downward extending flat valves, dorsal valves narrow erect, and penis slender deformed and projecting; seventh tergite of female fringed with close-set blackish setæ, the corresponding sternite long and narrow, ovipositor short and stubby, ending in two small erect hooks.

Legs slender, coxæ loosely setose, remainder of legs with usual covering, no bristles other than a flexor grouping of stiff setulæ toward tip of middle tibiæ and a single small flexor bristle at apex of front tibiæ; tarsi somewhat longer than their tibiæ; pulvilli small, empodium microscopically setiform.

Wings broad, hyaline, veins yellowish, costa encompassing wing, fringed with marginal hairs, no stigma, auxiliary vein complete, ending in costa opposite fork of third vein, second vein long, ending near tip of wing, third vein forked, discal cell complete and rather large, emitting three posterior veins, anal crossvein perpendicularly recurved, rounding into the anal vein which continues only as a fold of the membrane beyond the anal cell.

Genotype : The following new species, which is of very delicate structure.

Geographical distribution.

1. *C. longicornis*, nov. sp. (1). — Pl. 3, Fig. 22.

Washington.

6. GENUS TRICHOPEZA, RONDANI

Trichopeza, Rondani, Dipt. Ital. Vol. 1, p. 150 [1856] (*Tricopesa*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 86 (1862); Röder, Wien. Ent. Zeit. Vol. 6, p. 169 (1887); Bezzi, Ann. Soc. Ent. France (6), Vol. 9, p. 121 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 258, 261 (1903);

loose setæ along margin, male terminal processes testaceous, with black tip, penis testaceous, its tip deflected posteriorly, other pygidial parts piceous. Coxæ brownish yellow, legs piceous brown, the front knees a little lighter, middle tibiæ of male with small thorn-like seriate flexor spines extending between middle and apex. Wings infumated, veins dark brown; calypteres and halteres yellow.

One male and twenty-five females, found by the author principally about the rills formed from melting snow on the Sluiskin slope above Paradise Park, Mount Rainier, Washington, August, 1917. Of the type lot single specimens were found along Van Trump Creek and on Eagle Peak, both localities also on Mount Rainier.

(1) ***Ceratempis longicornis***, nov. sp. — Male. Length 2.8 mm. Entirely yellow, largely shining, the third antennal joint black, the ocellar spot and last tarsal joint blackish. Pubescence of third antennal joint gray, bristles of body black, hairs of legs dark. Upper valves of pygidium with black hairs, a pair of stiff black backward-directed setæ arising from near middle of pygidium, the flaring lower valves covered with downward-directed hairs.

Female. Third joint of antennæ a little shorter than in the male.

Eight specimens, Nasel River, and Ilwaco, in Southwestern Washington, July (Melandner).

Kertész, Cat. Dipt. Vol. 6, p. 111 (1909); Lundbeck, Dipt. Dan. Vol. 3, p. 241 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 45, 85 (1910); Engel, Deutsche Ent. Zeitschr. 1918, p. 3 (1918); Brunetti, Fauna Brit. India. Dipt. Vol. 1, p. 371 (1920).

Characters. — Slender, long legged, dark colored species measuring about five millimeters. Head rounded, eyes very large, occiput little convex; front broad in both sexes, the sides strongly converging toward the antennæ, no fronto-orbitals, ocelli large and not elevated. face obliterated by the contiguity of the eyes except for a short narrow space beneath the antennæ and at the oral edge, no cheeks; eyes of both sexes contiguous below, the middle anterior facets largest, finely pubescent, antennal excision strong; antennæ located high up on the head, strikingly long, three-jointed, nearly bare, the first joint lengthened and cylindrical, the second globose, the third greatly drawn out, tapering gradually and without articulation into the arista; proboscis slender, vertical, slightly shorter than the head, the labrum as long as the slender labium, palpi about one-fourth as long as the proboscis, rather cylindrical, one-jointed, decumbent and little hairy; occipital hairs sparse, uniseriate, enlarging above as bristles, a pair of long fine ocellar bristles present. Thorax arched, metathorax not declivous, no pubescence, bristles sparse but fine and long, one humeral, one posthumeral, no acrostichals, about four dorsocentrals, two notopleurals, two scutellars, one supra-alar and one postalar; pleuræ bare. Abdomen long and slender, not bristly, the segments marked with distinct lateral as well as transverse rows of pits; pygidium reflexed over the small eighth segment, consisting of a ventral piece which bears on the left front edge a prominent erect process and is tipped by a pair of small leaf-like valves, penis hidden or long, slender and curved; seventh segment of the female broadly emarginate above, the sides lobose, the seventh sternite acute, eighth segment retracted. Legs long and slender, front coxæ one-half as long as their femora and nearly twice as long as the posterior pairs, femora with some long fine flexor setæ, posterior tibiæ with long bristles, pulvilli small. Wings narrow, costa continuing around the entire margin, basal bristle present, no stigma, auxiliary vein distinct, straight, vanishing just beyond the end of the anal cell, third vein with a long fork, discal cell located before the middle of the wing, the sections of the fifth vein nearly two to one, second basal cell longer than the first, anal cell small, its crossvein strongly recurved and continuous with the under side of the anal cell, anal vein replaced by a fold, not attaining the margin, discontinuous with the anal cell, no anal lobe, no alula, marginal fringe long, calypteres not at all fringed, their edge straight.

Type species : *T. longicornis*, Meigen (Pl. 7, Fig. 69). Westwood, Gen. Syn. p. 132 (1840). cited this species as the type of *Brachystoma*, but since Blanchard the same year assigned *vesiculosum* as the type of *Brachystoma* it is best to accept his decision.

Geographical distribution.

1. *T. albocincta*, Boheman, Oefv. Vet. Akad. Förh. Stockholm. Vol. 20, p. 80 N. Europe.
[1863] (*Brachystoma*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37
(3), p. 66 [1913] (*albocincta*); Ent. Tidskr. 1914, p. 80 (1914).
2. *T. fusca*, Brunetti, Rec. Indian Mus. Vol. 9, p. 31 (1913); Fauna Brit. India.
India Dipt. Vol. 1, p. 372, f. 35 (1920).
3. *T. longicornis*, Meigen, Syst. Besch. Vol. 3, p. 12, pl. 22, f. 6, 7 [1822] Europe.
(*Brachystoma*); Macquart, Hist. Nat. Dipt. Vol. 1, p. 344 (1834)
(*Brachystoma*); Zetterstedt, Dipt. Scand. Vol. 1, p. 363 [1842] (*Brachystoma*); Scholz, Zeitschr. Ent. Breslau, Vol. 5, p. 52 [1851] (*Brachystoma*); Walker, Ins. Brit. Dipt. Vol. 1, p. 103, pl. 3, f. 4 [1851]
(*Brachystoma*); Zetterstedt, Dipt. Scand. Vol. 13, p. 5004 [1859]
(*Brachystoma*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 87 (1862);
Stein, Wien. Ent. Zeit. Vol. 22, p. 225 (1903); Lundbeck, Dipt.

Dan. Vol. 3, p. 243, f. 106, 107 (1910); Wahlgren, Ent. Tidskr. p. 31, p. 85 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 66 (1913).

4. *T. *sucina*, new name.

Baltic Amber.

longicornis, Meunier, Ann. Soc. Sc. Nat. (Zool.) Vol. 7, p. 90, 108, pl. 7, f. 3-5 (1908).

7. GENUS DIPSOMYIA, BEZZI

Dipsomyia, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 389 (1909).

Characters. — Head rounded, ocellar prominence with long, well-separated bristles; face bare, cheeks narrow; antennæ short, the third joint very short, bearing a thick arista which is twice as long as the antennæ; proboscis thick, blunt, vertical or slightly inclined, the palpi large, exerted perpendicularly, black. Thorax but little convex, opaque cinereous; dorsocentral bristles strong, extending to the front margin, alternating large and small bristles, acrostichals distinct, biseriate, scutellum with marginal hairs in addition to the two bristles; metapleuræ bare. Legs black, front coxæ one-fourth as long as their femora, with projecting setæ in front, front femora incrassate, spinose at their base, front tibiæ pectinate within with short bristles, pulvilli distinct but small. Wings elongate, narrow, rather pointed, the axillary angle very obtuse, no stigma, costa extending around the hind margin, humeral crossvein present, auxiliary vein evanescent apically, first vein ending beyond the middle of the wing, third vein furcate, its pedicel arising near the middle of the second basal cell, fourth vein arising at the base of the anal cell, discal cell rather large, complete, emitting three posterior veins, the second posterior cell sessile, anal cell shorter than the second basal, the crossvein rounded and distinct from the anal fold.

Type species: *D. spinifera*, Bezzi, from South America, the only known species. Bezzi states that this genus seems intermediate between *Philotutra* and *Hilarempis*, resembling the former in its general venation, shortened antennæ and lengthened bristles, but differing in its lengthened proboscis, thickened front femora and long second basal cell.

Geographical distribution.

1. *D. spinifera*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 389, f. 14 Chili. (1909).

8. GENUS PROCLINOPYGA, NOV. GEN.

Characters. — Slender olivaceous species with black legs. Head globular, eyes of both sexes widely separated, facets uniform, bare, front wide the sides converging toward the antennæ, ocelli large, not elevated, a pair of strong diverging distant ocellar bristles behind which on the level of the posterior ocelli is a pair of smaller diverging approximated lesser ocellars; sides of the face parallel, the face of the female broader than in the male; cheeks small and narrow but separated from the face; antennæ located above the middle of the head, plainly three-jointed, the basal joints subequal, the third joint conical but with concave sides, arista terminal, as long as the third joint, thickened, geniculate at its attachment, three-jointed, the basal segment minute and quadrate, the apical part consisting of a microscopic hair; proboscis very short, thick, fleshy, and blunt, palpi short, horizontal, rather clavate and hairy; occipital hairs biseriate, the uppermost bristle-like. Thorax broader than the head, entirely pollinose, no pubescence, bristles prominent, metathorax longer than the scutellum and not declivous, one humeral, one posthumeral, an oblique row of three notopleurals, several supra-alars, one postalar,

usually four scutellars, six to eleven uniseriate dorsocentrals, the foremost large and placed toward the humeri, acrostichals irregularly biseriate; pectus with a few microscopic hairs, metapleuræ with a vertical row of five setulæ. Abdomen slender, twice as long as the thorax, setulose, the lateral pairs of pits oblique, the sixth, seventh and eight segments of the male shallow to accomodate the large reflexed epipygium, from the anterior base of the epipygium two strong dorsal prongs extend forward, middle valves large, convex, ovate, terminal valves small and hastate, penis thick, curving forward; eighth segment of the female entirely retracted within the full-sized and compressed seventh segment. Legs long and slender, specialized in the male by bristles and a lengthening of the tarsus, front coxæ half as long as the femora and one-third longer than the posterior pairs. Wings almost cuneiform, the anal lobe slightly evident, costa continuing around the entire wing, with a long basal bristle and small setulæ, auxiliary vein straight, vanishing apically opposite the anterior crossvein, first vein extending two-thirds the wing-length, third vein with a long fork, the main branch ending at the tip of the wing, discal cell located before the middle of the wing, scarcely longer than the second basal, the anterior crossvein near the middle of the discal cell, the first basal cell therefore much longer than the second, pedicel of the second and third veins arising near the humeral crossvein, pedicel of the fourth vein arising directly under the humeral crossvein and close to the base of the second basal, anal cell narrow, its crossvein strongly recurved, extending back one-fourth the length of the anal cell before fusing with the anal vein, which is weak, gradually evanescent and does not reach the hind margin, no alula, hairs of the hind margin of the wing very small; calypteres moderate, their hairs fine and silky.

Type species : *P. amplexens*, nov. sp. (Pl. 7, Fig. 65). The genus is apparently a close relative of *Dipsomyia*, and with it shows many resemblances to the Empidinæ. The neuration is quite constant among the following species.

Geographical distribution.

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|--|--------------------|
| 1. <i>P. amplexens</i> , nov. sp. — Pl. 7, Fig. 65. | California. |
| 2. <i>P. exporrecta</i> , nov. sp. | Montana. |
| 3. <i>P. fistulator</i> , nov. sp. — Pl. 8, Fig. 75. | Quebec. |
| 4. <i>P. monogramma</i> , nov. sp. | W. United States. |
| var. <i>flavicoxa</i> , nov. var. | Idaho, Washington. |
| 5. <i>P. solivaga</i> , nov. sp. | Washington. |

KEY TO THE MALES OF PROCLINOPYGA

1. Under side of middle femora bearing three pale setæ at base, middle tibiæ swollen near middle and there bearing many flexor setulæ, middle metatarsus as long as tibia; sixth abdominal segment with many long black bristles, sides of abdomen with short pale hairs. *P. AMPLECTENS*, nov. sp. (1).

(1) **Proclinopyga amplexens**, nov. sp. (Pl. 7, Fig. 65). — Male. Length 4 mm. Olivaceous above, cinereous, almost white pruinose, on the sides and beneath, face whitish, mouthparts black; first joint of the antennæ short-cylindrical, with a few setulæ above, second joint with a crown of setulæ, third joint pubescent, twice as long as wide; hairs of lower occiput sparse and white. Ten dorsocentrals, about nine irregular pairs of acrostichals not extending on prescutellar area, no scutellar setulæ, pronotum with a pale hair on each side, metapleural hairs white. Lateral and ventral hairs of the abdomen short and white, dorsal setulæ black; sixth tergite with a cluster of black hairs, epipygium black. Legs entirely black, coxal hairs white, front femora equal to their tibiæ, the front tarsi one-half longer, middle tibiæ somewhat longer than their femora, closely setulose from middle to apical fourth, broadly excised within toward tip, middle tarsi greatly lengthened, nearly twice as long as their femora, the metatarsus nearly as long as the remainder, hind legs simple the femora with a few black extensor setulæ, posterior femora with a long white bristle beneath near the base, all the pulvilli of microscopic size, empodium similarly small, compressed. Wings three times as long as broad, widest beyond

- Under side of middle femora more extensively setose, middle tibiae not deformed and as long as basal two joints of their tarsi; sixth segment of abdomen not densely setose 2.
2. Setae of middle femora particularly conspicuous along the middle, middle tibiae densely setulose within; dorsal prong of pygidium with black velvety knob at middle and bluntly tong-shaped tip *P. EXPORRECTA*, nov. sp. (1).
- Setae of middle femora evenly distributed, middle tibiae scarcely setulose; dorsal prong of pygidium without velvety knob. 3.
3. Setae of middle femora distant, about eight in number; dorsal prong of pygidium jet black, quadrate at base and then suddenly narrowed, distally ribbon-like, preapical valve split at apex, apical valve strap-shaped, side valve large and setose behind *P. FISTULATOR*, nov. sp. (2).
- Setae of middle femora closer, about twelve in number; side valve not setose, preapical valve pointed 4.
4. Six to eight dorsocentrals, four scutellars; side valve subshining, rounded quadrate *P. MONOGRAMMA*, nov. sp. (3). 5.

the discal cell, slightly infumated, a very faint stigma, sections of the fourth vein proportioned 1.1 : 0.8 : 1 : 2, of the fifth vein equal, posterior crossvein not very oblique; hairs of the calypteres white.

Female. Seven dorsocentrals. Tarsi not lengthened, only a little longer than their tibiae, no basal bristles on the femora, tibiae simple, unarmed except that the middle ones have two extensor and one apical small setulae. Seventh segment of the abdomen with ciliate margin.

One specimen of each sex, received from Professor Aldrich, who collected them at Woodside, California, April 25, 1909.

(1) *Proclinopyga exporrecta*, nov. sp. — Male. Length 3 mm. Heavily dusted with blackish brown above, dark gray on sides. Facets uniform. About eight dorsocentrals, four scutellars, metapleural setulae black. Abdomen setose, the basal and ventral hairs pale, sixth segment with long setae; epipygium stout, the dorsocentral prongs deformed, loosely long-ciliate in front, swollen and black-velvety at middle and curved and bluntly tong-like at tip, apical valves large spoon-shaped and densely hairy beneath, side valves triangular, setose behind, penis shaped like a long stalked open ?-mark. Lower side of middle femora with a group of six long stout bristles near the middle and with a row of pale flexor setae which form a short fringe before the knee, hind femora with about eight extensor and seventeen flexor outstanding setae, middle tibiae finely setulose within more pronounced at tip, middle tarsi not abnormally lengthened, the metatarsus about two-thirds as long as the tibia. Stalk of halteres brown; calypteres and fringe yellow.

Type, Saltese, Montana, August 22, 1916 (Melander). A female from the Gallatin Ranger Station of Yellowstone National Park, July 28, 1923 (Melander) offers no distinctive characters. Its last abdominal segment is compressed and shiny.

(2) *Proclinopyga flatulator*, nov. sp. (Pl. 8, Fig. 75). — Male. Length 3 mm. Heavily dusted with blackish brown above, dark gray on sides. Lower facets very slightly larger than upper. About eight dorsocentral, acrostichals long, four scutellars, metapleural setulae black. Abdominal hairs not long except on sixth segment, those at base and on venter pale; epipygium stout, dorsal prongs wide at base then suddenly narrowed to the curled ribbon-like end which is ciliate within at tip, preapical valves narrow chitined and excavated at tip to suggest an opposing thumb and forefinger, apical valves narrow chitined and loosely hairy, side valves quadrangular and setose behind, penis tubular rectangularly bent at basal third, erect over middle third and slightly curved on apical third. Middle femora with a long pale flexor seta at base, the black flexor setae sparse and inconspicuous, hind femora with about four flexor and eight extensor short setae along basal half, tibiae and tarsi normal. Stalk of halteres brown; calypteres and fringe yellow.

Holotype, Megantic, Quebec, 18 July, 1923 (Curran), deposited in Canadian National Museum.

(3) *Proclinopyga monogramma*, nov. sp. — Male. Length 2.2 mm. Piceous black, the lower pleurae and coxae somewhat cinereous. Lower facets a little enlarged. Eight dorsocentrals, four scutellars, acrostichals long, three to six black metapleural setulae. Abdomen coarsely black-hairy, the bristles of the sixth segment not pronounced, epipygium relatively small, compressed, subshining, lateral valves not setose, triangular, the inner corner connected with its mate by an arched chitinous bridge, dorsal process straight, preapical process long and rod-shaped, apical valve small, narrowly

- Eleven dorsocentrals, six scutellars; abdomen coarsely setose,
 side valve gray pruinose, twice as high as wide P. SOLIVAGA, nov. sp. (1).
 5. Coxæ, halteres and calypteres blackish P. MONOGRAMMA, s. str.
 Apex of coxæ, base of femora, stalk of halteres, and calypteres
 yellowish var. FLAVICOXA, nov. var.

9. GENUS OREOTHALIA, MELANDER

Oreothalia, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 232 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 254, 260 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 224 (1908); Kertész, Cat. Dipt. Vol. 6, p. 119 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 580 (1910).

Characters. — Slender, opaque black species of the habitus of *Clinocera*, but with the third vein simple and the anal crossvein abruptly turned back. Head oval, hanging vertically; eyes finely pubescent, widely separated on the face and front, facets uniform, emargination at the antennæ distinct; antennæ inserted high up, the front very short, ocellar tubercle prominent, cheeks narrow, incised and separated from the face; proboscis very short, thick and flat, palpi small and broad; antennæ short, contiguous, three-jointed, but the basal joint inset, third joint oval, its terminal arista apparently single-jointed, thickened, not hairy, nearly twice as long as the antennæ; ocellar and upper occipital bristles present, lower occiput with sparse hairs. Thoracic bristles long and strong, no acrostichals, five dorsocentrals, one humeral, two intraalars, one supraalar, one postalar, a few notopleural setulæ near the root of the wing, metapleuræ with a cluster of hairs; prosternum shorter than the mesosternum. Abdomen as long as the thorax, the first six segments of the male cylindrical, then suddenly smaller to accomodate the reflexed epipygium, penis conical, upper valves directed forward and thin and flat toward the tip, abdomen of the female blunt. Legs slender, front coxæ two times as long as the posterior pairs, front femora with strong thorn-like setulæ below on the apical two-thirds, hind tibiæ setose, no tibial spurs; claws long and slender, empodium long. Wings slender, costa continuing around the entire margin, a pair of strong basal bristles, costal setulæ minute, auxiliary vein ending in the costa, first vein terminating before the middle of the wing, stigma very faint, third vein simple, discal cell complete, pentagonal, posterior cells sessile, fourth vein arising at one-third the length of the anal cell,

triangular and short-hairy; penis thickened, curving forward, the tip recurved. Legs ordinary, the middle femora below and the hind ones above with a row of setæ. Stalk of halteres piceous; calypteres blackish

Female. Last abdominal segment compressed and shining.

Type, Troy, Montana, August 10, 1916 (Melander). Nine Paratypes, all collected by author, at St. Regis Pass, Idaho-Montana; Priest Lake, Idaho; Lake Keechelus, Lake Cushman, Ramparts of Mount Rainier, Washington; and Shasta Springs, California.

Var. *flavicoxa*, var. n. Stalk of halteres, calypteres, apex of coxæ, trochanters and more or less of base of femora yellow.

Type, Priest Lake, Idaho, August 1, 1916 (Melander). The penis is abruptly elbowed at the middle and its tip is widely recurved. Paratypes, male and female, Lake Keechelus, Washington. The penis of the paratype is gently curved.

(1) **Proclinopyga solivaga**, nov. sp. — Male. Length 2.2 mm. Notum olivaceous black, cinereous brown toward notopleural suture and on middle of abdomen, pleuræ and sides of abdomen cinereous. Facets uniform. About eleven dorsocentrals, acrostichals long, six scutellars, two pale metapleural setulæ. Abdomen coarsely hairy, especially on sixth segment, the hairs of first segment and of sides of second pale, venter nearly bare, pittings very large; epipygium robust, erect, side valves distorted-oblong, heavily pollinose, hairy but not setose behind, dorsal prongs thin, curved preapical valves small and wiry, apical valves with small pointed tip, penis flat, bending forward near middle, its compressed base pollinose. Legs without distinctive characters. Stalk of halteres piceous; calypteres blackish.

Holotype, Van Trump Park, Mount Rainier, Washington, 21 July, 1922 (Melander).

the second basal cell therefore small, no fold in the wing membrane beneath the humeral crossvein, anal crossvein abruptly reflexed, the outer border of the second basal and anal cells nearly continuous, oblique, anal vein thin and short, anal angle very poorly developed, blunt.

But a single species is known, occurring along streams in wooded regions of the North-western United States.

Geographical distribution.

1. *O. pelops*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 233 (1902). — Idaho, Washington.
Pl. 2, Fig. 17.

10. GENUS HELEODROMIA, HALIDAY

Heleodromia, Haliday, Ent. Mag. London, Vol. 1, p. 159 (1833); Curtis, Brit. Ent. Vol. 8, p. 513 (1834); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 250, 260 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 224 (1908); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 550 (1910); Engel, Deutsche Ent. Zeitschrift, 1918, p. 3 (1918).

Macroura, Zetterstedt, MS. (not Loew, 1845 [*amber Tipulidæ*]; not Reitter, 1873 [*Coleoptera Nitidulidæ*]), Fauna Ins. Lappon. p. 572 (1838); Scudder, Nomencl. p. 199, Index, p. 185 (1882).

Microcera, Zetterstedt (not Meigen, 1803 [= *Pipunculus* Latreille]; not Mannerheim, 1830 [*Coleoptera*]; not Liroy, 1864 [= *Hydrotæa* Desvoidy]); Zetterstedt, Fauna Ins. Lappon. p. 572 (1838); Dipt. Scand. Vol. 1, p. 440 (1842); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 253 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 569 (1910).

Sciodromia, Haliday, Westwood: Gen. Syn. p. 132 (1840); Walker, Ins. Brit. Dipt. Vol. 1, p. 107 (1851); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 563 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 85 (1862); Röder, Wien. Ent. Zeit. Vol. 6, p. 169 (1887); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 122 [1889] (*Sciodromyia*); Coquillett, Proc. U. S. Nat. Mus. Vol. 17, p. 390 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 345 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 257 (1903); Kertész, Cat. Dipt. Vol. 6, p. 129 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 604 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 45, 86 (1910).

Characters. — Slender, black dusted species with narrow face, lengthened proboscis, globose pygidium, simple third vein and truncate anal cell. Head rotund, eyes bare, narrowly separated on the face, the vertex broad, lower anterior facets much enlarged in both sexes; basal joint of the antennæ minute, middle joint spherical, third joint oval or ovate, with a slender, terminal, apparently two-jointed arista, in reality the first joint of the arista is a terminal process of the third joint; proboscis cylindrical, obliquely projecting, shorter than the head, somewhat fleshy, palpi small, oval, hairy; cheeks obliterated; ocellar and vertical bristles present, lower occiput nearly bare. Thorax short, completely coated with fine dust, bristles small to moderate, one humeral, four dorsocentral, one supraalar, one postalar two scutellar, no acrostichals; metathorax not declivous, prosternum shorter than the mesosternum, metapleuræ bare, at most with one or two minute hairs. Abdomen long, segments marked with pits, the terminal segments of the male not reduced, pygidium large, globose, terminal, the valves small, uncinate, horny, penis hidden; last (seventh) tergite of the female densely pectinate apically with long setæ. Legs long, slender and blackish, no bristles or spurs, the claws, pulvilli and empodium minute. Wings narrow, cuneate, the anal angle scarcely developed and broadly rounded, costa encompassing the entire wing, no basal bristle or costal setulæ, auxiliary vein attaining the costa, first vein ending beyond the middle of the wing, third vein simple, discal cell complete and long, posterior cells sessile,

a fold below the humeral crossvein, fourth vein arising near the base of the anal cell, its origin not abrupt, anal cell apically truncate by the rectangular anal crossvein, the anal vein continuing as a spur beyond the lower angle of the anal cell.

Taxonomy. — Haliday erected the genus *Heleodromia* for four species, *immaculata*, *bipunctata*, *stagnalis* and *fontinalis*. Curtis (Brit. Ent. 1834) designated *immaculata* as the type for *Heleodromia*, and Macquart (Hist. Nat. Dipt. Vol. 2, p. 658, 1835) repeated this. Macquart removed *stagnalis* and *bipunctata* to a new genus *Hydrodromia*, to which also belongs *fontinalis*. Mik (Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 325, 1881) placed *bipunctata* in his new genus *Kowarzia*. Thus by elimination, *stagnalis* is left as the type of the group *Hydrodromia*. Haliday, in a manuscript note, published in Westwood's Introduction, Generic Synopsis, p. 132 (1840), proposed to substitute *Sciodromia* as the generic name for *immaculata*, but did not give a valid reason for the change. *Microcera* was erected by Zetterstedt for *rostrata*, which is a synonym of *immaculata*: his manuscript name for this insect was *Macronura*.

The species of *Heleodromia* occur in Europe and in Western North America.

Geographical distribution.

1. *H. curtipes*, Becker, Deutsche Ent. Zeitschr. p. 645 [1910] (*Sciodromia*). Corsica.
 2. *H. immaculata*, Haliday, Ent. Mag. London, Vol. 1, p. 159 (1833); Curtis, Brit. Ent. Vol. 8, p. 513 (1834); Macquart, Hist. Nat. Dipt. Vol. 2, p. 658 (1835); Meigen, Syst. Besch. Vol. 7, p. 93 [1838] (*Hemerodromia*); Walker, List Dipt. Brit. Mus. Vol. 3, p. 505 (1849); Scholz, Zeit. Ent. Breslau. Vol. 5 (19), p. 56 [1851] (*Sciodromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 107, pl. 4, f. 1 [1851] (*Sciodromia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 86 [1862] (*Sciodromia*); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 98 [1892] (*Sciodromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 86 [1910] (*Sciodromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 68 [1913] (*Sciodromia*).
fuscipennis, Roser, Correspondenzbl. Landw. Ver. Würtemb.-Stuttgart, Vol. 1, p. 53 [1840] (*Hemerodromia*).
rostrata, Zetterstedt, Fauna Ins. Lappon. p. 572 [1838] (*Microcera*); Dipt. Scand. Vol. 1, p. 440 [1842] (*Microcera*); ibidem, Vol. 8, p. 3046 [1849] (*Microcera*); Bonsdorff, Finl. tvâv. Ins. Dipt. Vol. 1, p. 176 [1861] (*Microcera*); Siebke, Nyt. Mag. Naturv. Vol. 12, p. 109 [1864] (*Microcera*).
 3. *H. pectinulata*, Strobl, Glasnik, Zem. Mus. Bosn. Herceg. Sarajevo, S. Europe. Vol. 10, p. 399 [1898] (*Sciodromia*); Wissensch. Mitth. Bosn. Herceg. Sarajevo, Vol. 7, p. 561 [1900] (*Sciodromia*).
 4. *H. pullata*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 345 [1902] W. United States. (*Sciodromia*); Kertész, Cat. Dipt. Vol. 6, p. 123 [1909] (*Hydrodromia*); Engel, Deutsche Ent. Zeitschr. 1918, p. 48 [1918] (*Hydrodromia*). — Pl. 7, Fig. 68.
- **Sp. imm.* Meunier, Miscell. Ent. Vol. 7, p. 178 (1899). Baltic Amber.

II. GENUS ROEDERIOIDES, COQUILLETT

Roederioides, Coquillett, New York State Mus. Bull. Vol. 47, p. 585 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 239 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 257, 263 (1903); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 363, note (1905); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 601 (1910); Engel, Deutsche Ent. Zeitschr. 1918, p. 264 (1918).

Characters. — Slender brownish black pollinose species with long yellow legs. Head vertically elongate, the cheeks rostriform, two-thirds the eye-height, not sutured from the face but with a small impression just beneath the eye, truncate at the oral margin, narrowly notched at the epistome, face bare; proboscis nearly as long as the height of the head, rather slender and tapering, inflexed, chitinized, filling the oral cavity, opaque black except at the apex, without trace of the labella; palpi small, projecting downward, incumbent; antennæ touching, the third joint compressed ovate, but nearly straight above, pointed apically, bearing a moderately thick, two-jointed, downward-directed arista whose length is slightly more than the third joint; one pair of projecting ocellar bristles, one pair of verticals, setulæ of occiput sparse. Thorax not elongate, the prosternum half as long as the mesosternum; five dorso-centrals, no acrostichals, one humeral, one posthumeral, one small notopleural, one small supraalar, one postalar, four scutellar and also discal and marginal setulæ on the scutellum; metapleuræ with hairs. Abdomen comprising eight segments (♀), two small terminal styles; epipygium of the form of *Clinocera*, middle and upper valves hemispherical, nearly equal in size, keel not compressed, penis recurved at the tip. Legs slender, without setulæ or long hairs, tarsi peculiar, the first joint long, equalling the remainder, the second, third and fourth joints very short and similar, of the anterior pairs not longer than thick, fifth joint of all the tarsi continued dorsally at the apex as a conical process, so that the claws do not arise at the end of the tarsi, empodium fleshy and larger than the pulvilli, tactile hairs much reduced, claws long and curved. Costa encompassing the entire wing, a basal costal bristle present, no costal setulæ, no stigma, third vein forked, discal cell complete, pointed, second posterior cell acute and with a short petiole, no fold under the humeral crossvein, second basal cell short, as in *Clinocera*, anal cell almost rounded at the apex, coextensive with the second basal, no anal vein, cilia of the hind margin longer than the anterior crossvein.

Type species : *R. juncta*, Coquillett (manuscript name *Needhami* Coquillett) is the only representative. The species measures two and a half millimeters and was found in the mountainous woods of North-eastern New York. Mr. C. W. Johnson has taken the species on Mt. Washington, New Hampshire.

Geographical distribution.

1. *R. juncta*, Coquillett, New York State Mus. Bull. Vol. 47, p. 585 (1901); E. United States. Needham, ibidem, p. 581, pl. 15, f. 5-8 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 239 (1902); Engel, Deutsche Ent. Zeitschr. 1918, p. 264 (1918). — **Pl. 2, Fig. 19.**

12. GENUS CLINOCERA, MEIGEN

Clinocera, Meigen, Illiger Mag. Ins. Vol. 2, p. 271 (1803); Rondani, Dipt. Ital. Vol. 1, p. 149 (1856); Loew, Wien. Ent. Monatsschr. Vol. 2, p. 238-253, 257-262 (1858); Schiner, Fauna Dipt. Aust. Vol. 1, p. 84 (1862); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 320 (1881); Bigot, Bull. Soc. Ent. France, Vol. 12, p. 102, 103, 118 (1887); Mik, Ent. Nachr. Berlin, Vol. 14, p. 42 (1888); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 120 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389 (1895); Williston, Man. N. Amer. Dipt. p. 75 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 240 (1902); Williston, Man. N. Amer. Dipt. p. 224 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 300 (1909); Lundbeck, Dipt. Dan. Vol. 3, p. 213 (1910); Wahlgren, Ent. Tidsk. Vol. 31, p. 45, 81 (1910); Kertész, Rovert. Lapok, Budapest, Vol. 18, p. 65, 68 (1911); Brunetti, Fauna Brit. India Dipt. Vol. 1, p. 364 (1920).

- Atalanta** of authors, Meigen, *Nouv. Classif. Mouches*, p. 31 (1800); Hendel, *Verh. Zool.-bot. Ges. Wien*, Vol. 58, p. 60 (1908); Kertész, *Cat. Dipt.* Vol. 6, p. 120 (1909); Oldenberg, *Arch. Naturges. Berlin*, Vol. 80, A, p. 9, 92 (1915); Engel, *Deutsche Ent. Zeitschr.* 1918, p. 1-80, 197-268 (1918).
- Bergenstammia**, Mik, *Verh. Zool.-bot. Ges. Wien*, Vol. 31, p. 326 (1881); Bigot, *Bull. Soc. Ent. France*, Vol. 12, p. 102 (1887); Coquillett, *Proc. Ent. Soc. Wash.* Vol. 5, p. 246, 262 (1903); Kertész, *Rovert. Lapok*, Vol. 18, p. 67 (1911); Engel, *Deutsche Ent. Zeitschr.* 1918, p. 75 (1918).
- Clinocera**, s. str., Mik, *Verh. Zool.-bot. Ges. Wien*, Vol. 31, p. 320 (1881); Coquillett, *Proc. Ent. Soc. Wash.* Vol. 5, p. 248, 262 (1903); *Proc. U. S. Nat. Mus.* Vol. 37, p. 525 (1910); Kertész, *Rovert. Lapok*, Vol. 18, p. 67 (1911).
- Heleodromia** of authors, Haliday, *Ent. Mag. London*, Vol. 1, p. 159 (1833); Westwood, *Gen. Syn.* p. 132 (1840); Walker, *List Dipt. Brit. Mus.* Vol. 3, p. 503 [1849] (*Heliodromia*); *Ins. Brit. Dipt.* Vol. 50, p. 104 (1851); Bigot, *Ann. Ent. Soc. France* (3), Vol. 5, p. 561 (1857); *Bull. Soc. Ent. France*, Vol. 12, p. 102 (1887); Lundbeck, *Dipt. Dan.* Vol. 3, p. 217 (1910); Kertész, *Rovert. Lapok*, Budapest, Vol. 18, p. 67 (1911).
- Hydrodromia**, Macquart (not *Hydrodromia*, Scudder, *Nomenclator* 167 (1882); which is mistake for *Hydromyia*, Desvoidy), *Hist. Nat. Dipt.* Vol. 2, p. 658 (1835); Bigot, *Ann. Soc. Ent. France* (3), Vol. 5, p. 562 (1857); Coquillett, *Proc. Ent. Soc. Wash.* Vol. 5, p. 251, 262 (1903); *Proc. U. S. Nat. Mus.* Vol. 37, p. 554 (1910); Engel, *Deutsche Ent. Zeitschr.* 1918, p. 37 (1918).
- Kowarzia**, Mik, *Verh. Zool.-bot. Ges. Wien*, Vol. 31, p. 325 (1881); Bigot, *Bull. Ent. Soc. France*, Vol. 12, p. 103 (1887); Coquillett, *Proc. Ent. Soc. Wash.* Vol. 5, p. 251, 262 (1903); Kertész, *Rovert. Lapok*, Budapest, Vol. 18, p. 67 (1911); Engel, *Deutsche Ent. Zeitschr.* 1918, p. 64 (1918).
- Paramesia**, Macquart (not Stephens, *Lepidoptera*, 1829), *Hist. Nat. Dipt.* Vol. 2, p. 656 (1835); Bigot, *Ann. Soc. Ent. France* (3), Vol. 5, p. 562 (1857); Coquillett, *Proc. Ent. Soc. Wash.* Vol. 5, p. 255 (1903); *Proc. U. S. Nat. Mus.* Vol. 37, p. 584 (1910).
- Phæobalia**, Mik, *Verh. Zool.-bot. Ges. Wien*, Vol. 31, p. 326 [1881] (*Phäobalia*); Coquillett, *Proc. Ent. Soc. Wash.* Vol. 5, p. 255, 262 [1902] (*Phäobalia*); Kertész, *Rovert. Lapok*, Budapest, Vol. 18, p. 67 (1911); Engel, *Deutsche Ent. Zeitschr.* 1918, p. 50 (1918).

Characters. — Medium sized, slender, olive-gray tomentose, long-legged flies that occur along water courses and in damp woods. Head globular, slightly wider than high in those species with small cheeks, sometimes the mouth is prolonged far downward and the head is then much higher than wide, eyes widely separated, the face relatively broad. Occiput rather flat, the neck located above the center but not far from the center, bristles and setulæ prominent, usually three pairs of proclinate vertical bristles; front broad, much shorter than the face, the ocelli on a prominent tubercle, the ocellar bristles divergent and proclinate, inserted closer together than the posterior ocelli; face broad, the lower edge transverse or peculiarly emarginate at the middle, cheeks variable, a more or less distinct suture between the genæ and the buccæ, which sometimes occurs as a deep notch. Eyes round or oval, densely pubescent, the facets uniform, the emargination at the antennæ small. Antennæ short, three-jointed, located high on the head and almost touching, but the sockets distinctly separated, the second joint globular, the third joint oval or onion-shaped, sometimes drawn out as a short process, with a thickened, two-jointed bare arista, whose basal joint is minute and whose apex is either blunt or pointed. Proboscis very short and thick, directed vertically down, the labrum formed into a broad chitinous visor overlapping the proboscis; palpi short, somewhat clavate, projecting, and usually but little hairy. Thorax long and narrow, with a flattened area in front of the scutellum, thickly coated with olivaceous

tomentum, prothorax visible from above, the prosternum long, but a little shorter than the mesosternum, flared out around the base of the coxæ and sometimes medially sulcate; bristles strong, one or more humeral, one posthumeral, five or more dorsocentral, one or two notopleural, one or no supra-alar, one postalar, two scutellar bristles, acrostichals biseriate or wanting, sometimes the disk or the margin of the scutellum setulose and sometimes there are alternating setulæ in the dorsocentral rows; metapleuræ with a group of upturned hairs, prosternum more or less hairy. Abdomen tomentose or pruinose, of the male the last two segments are small and support the forward-directed epipygium, which comprises a hood-shaped ventral piece terminated by the geniculate slender penis and bearing the circular convex lateral valves, to which are articulated the various-shaped and complicated upper valves. Legs slender and elongate, front coxæ about one-half their femora in length, more or less setose or hairy along their front surface, the front femora sometimes a little thicker basally and variously provided with setulæ, preapical femoral bristles or setulæ sometimes developed, sometimes a characteristic oblique comb of setulæ on inner side of front femora just before the knee, tibiæ without apical spurs, the hind tibiæ sometimes bearing setæ, pulvilli small, empodium narrow and about as long as the claws except in *Bergenstammia* where it is practically absent. Wings cuneiform, no anal angle, the costa strong around the entire margin, costal hairs long, costal setulæ more or less developed, in *Eucelidia* the setulæ are prominent, humeral crossvein distinct, auxiliary vein entire, gently curving into the costa, first vein terminating near the middle of the wing, stigma prominent or poorly developed, marginal cell elongate, third vein forked, the upper branch sometimes connected with the second vein by an adventitious crossvein, in which case there are three submarginal cells, discal cell complete, pointed or blunt at its apex, emitting three posterior veins, the second posterior cell sessile or acute at its base, second basal cell small the fourth vein starting beyond the base of the anal cell with an abrupt bend, anal and second basal cells coextensive, the anal crossvein recurved or reflexed and continuing uninterrupted under the anal cell, anal vein distinct from the anal cell, or wanting, marginal cilia usually short.

This group of the *Empididæ* was subdivided by Mik in 1881 into ten genera. In doing this Mik was ahead of his time, for even yet many of his characterizations are not considered to have generic value. Two of his groups, based on the structure of the face and cheeks, are here preserved as of generic rank, the remainder being considered as subgenera of the primary two. Mik's distinctions have not always been correlated in the North Americal species, nor in the subsequently discovered European ones, but in the main his selection of such characters as the structure of the cheeks and of the epistome, the formation of the empodium and the variations in chætotaxy, showed a keen appreciation of characters hitherto neglected. In 1918 Engel published an extended critical review of the subgenera and species of *Clinocera* under the name *Atalanta*.

The species of *Clinocera* are very distinctive in appearance. The elongate thorax with olive-brown back and pruinose sides, the long slender black legs, short thick proboscis and cuneate wings, which are often spotted, are characteristic of the Clinocerans. Further distinctions exist in the furcate third vein, the small second basal cell and the rounded anal cell. The species are all found about damp woods, flying along water-courses or sometimes about ponds. They are boreal, occurring mainly in the North, in mountainous regions, some even appearing with the melting of the snow. They rarely occur in swarms, but while they are not rare insects, they are not easily captured, for they remain close to the water, fearlessly frequenting waterfalls, or running over the wet stones or even on the surface of the water, and thus they can be taken in the net only with difficulty. As adaptations to this life there have been developed the peculiar tomentose body covering, the dense pubescence of the eyes, the long legs and wings and the strange sensitive hairs and empodium at the apex of the tarsi.

GENUS CLINOCERA, MEIGEN

Characters. — To this division of the group *Clinocera* belong those species in which the lower part of the head is not produced downward beneath the eyes. The cheeks are thus narrow, and are deeply incised, even to the margin of the eye, and thus the sides of the face are entirely separated from the lower occiput or cheeks. The pulvilli and empodium are developed except in the subgenus *Bergenstammia*. None of the species has acrostichal or interstitial dorsocentral setulæ, and except in *Bergenstammia* there are no setulæ on the disk of the scutellum.

The following subgenera are recognized :

Clinocera, in the strict sense. Lower edge of the face transverse and not excised; discal cell rather sharp apically, wings not or scarcely spotted, costal setulæ usually minute, stigma wanting or faint.

Type species : *nigra*, Meigen (Pl. 2, Fig. 18). The only species mentioned in the original description. Some recent papers, unfortunately including Kertész' Catalogue of the Diptera of the world, have adopted Meigen's 1800 name *Atalanta* in place of the universally known *Clinocera*, and would call the subfamily the *Atalantiæ*. As Meigen mentions no species in this early paper the type dates from Hendel's interpretation in 1908, reason enough for disregarding the name *Atalanta*.

SUBGENUS HYDRODROMIA, MACQUART

Characters. — Lower edge of the face entire and transverse, not notched; discal cell blunt apically, wings more or less obviously spotted on the crossveins and on the forks of the veins but without a distinct stigma, costal setulæ variable, sometimes an extra crossvein connecting the upper fork of the third vein with the second vein and thus producing three submarginal cells.

Type species : *H. stagnalis*. Haliday. Macquart included two species in *Hydrodromia*, *stagnalis* and *bipunctata*, the latter being removed by Mik to his genus *Kowarzia*. By elimination, as Coquillett noted in 1903, *stagnalis* becomes the type of *Hydrodromia*. *Heleodromia* of various authors, based on *stagnalis*, is not the same as Genus 10, *Heleodromia*, based on *immaculata*. *Paramesia Wesmælii*, Macquart, which was designated by Coquillett in 1903 as the type of *Paramesia*, is congeneric with *H. stagnalis*.

SUBGENUS PHÆOBALIA, MIK

Characters. — Lower edge of the face with a median excision, the membrane filling the notch depressed and more or less carinate; discal cell blunt at the tip, wings spotted as in *Hydrodromia*, but the stigma is more distinct.

Type species : *P. trinotata*, Mik, by Coquillett's designation, 1903. Engel has unnecessarily specified *P. dimidiata*, Loew as the genotype.

SUBGENUS KOWARZIA, MIK

Characters. — Face with several scattered hairs, its lower edge incised in the middle, the notch filled by a depressed membrane which is more or less carinate; discal cell blunt at the tip, wings not spotted, the stigma poorly developed.

Type species : *K. barbatula*, Mik, by Coquillett's designation, 1903.

SUBGENUS BERGENSTAMMIA, Mik

Characters. — Pulvilli and empodium vestigial or wanting; face not continued beneath the eyes, the lower edge notched in the middle, the cheeks divided by a distinct suture; discal cell blunt apically, wings not marked; no acrostichals, five or more dorsocentrals, scutellum with setulae in addition to the apical pair of bristles; large sized species.

Type species: *B. nudipes*, Loew, the only one mentioned by Mik.

A KEY TO THE NORTH AMERICAN SPECIES OF CLINOCERA, S. LAT.

1. Three submarginal cells present; no acrostichals 2.
Two submarginal cells present 8.
2. Discal cell usually longer than the second posterior;
posterior femora without bristles; thorax bivittate
and with a white median vitta, veins undulating . . . *HYDRODROMIA UNDULATA*, nov. sp. (1).
Discal cell shorter than the second posterior 3.
3. Wings lightly infumated, no stigma, veins not
undulating *CLINOCERA TRUNCA*, nov. sp. (2).
Wings marked with nebulous spots 4.

(1) *Clinocera (Hydrodromia) undulata*, nov. sp. — Male. Length 3 mm. Olivaceous above, cinereous below, thorax narrowly bilineate with brown and centrally in front with a conspicuous cinereous vitta. Lower half of the face white, upper part blackish, front olivaceous brown, the vertical bristles strong, cheeks completely separated from the face, narrow, palpi elliptical with short sparse black hairs. Five strong dorsocentral bristles, no setulae, metapleural hairs fine, dense and yellow, pectus nearly bare. Coxal hairs sparse and yellow, legs black, front tibiae as long as their femora, front femora with two sparse rows of about eight regularly placed, short setae, hind tibiae with about eight extensor setae on the apical half, pulvilli and empodium normally strong and whitish. Halteres black, calypteres dark and with a pale yellow fringe. Wings almost hyaline but with broad darker spaces about the crossveins, stigma elliptical, costal setulae small, veins thin but strong, undulating, three submarginal cells, the third twice as long as its costal margin, discal cell longer than the broadly sessile second posterior cell, its outer third with parallel sides, sections of the fifth vein equal, anal crossvein recurved, anal vein a weak fold.

Type, Moscow Mountain, Idaho, July 6, 1912; paratype, same locality. Sept. 16, 1917 (Melandar).

A female from Mount Rainier, Washington, August 3, 1905, submitted by Professor Aldrich, differs in that the front femora lack the flexor bristling, and the darkening of the wings is more extended, the wings being somewhat infumated but with subhyaline spaces near the centers of the short cells and near the base and apex of the longer cells.

(2) *Clinocera trunca*, nov. sp. — Female. Length 3.5 mm. Black, coated above with greenish and on the sides and below with slate-colored pollen; legs black; wings brownish, veins strong. Occiput and vertex greenish, upper part of the face concave, dusky, lower part convex, white, separated from the very short dusky cheeks; eyes large; occipital bristles not numerous; palpi small, black, proboscis very short; antennae black, the third joint short, arista longer than the antennae. Mesonotum completely greenish pollinose, with faint indications of two dark vittae, no acrostichals, six uniform dorso-centrals, scutellum with two apical bristles; metapleurae with a few fine white hairs; metanotum slaty blue. Legs entirely black, front femora with a few inconspicuous setulae beneath; claws, pulvilli and empodium uniformly small. Wings unspotted but lightly infumated, the centers of the cells a little paler, veins strong, nearly black, costal setulae very minute, two submarginal cells, the second somewhat broader at the end than the first, the anterior branch of the third vein imperfect at its origin in the type specimen, gently and evenly sinuous, first and second posterior cells nearly alike at their base, the last section of the fourth vein but slightly longer than the front edge of the discal cell, anterior crossvein placed at two-fifths the length of the discal cell, the externo-anterior edge of the second basal cell two-thirds the length of the first section of the front border of the discal, posterior crossvein elbowed at its posterior third, making nearly a right angle with the fifth vein, last two sections of the fifth vein equal, anal crossvein round, separately closing the anal cell, anal vein replaced by a fold; halteres black.

Type specimen collected by Professor J. M. Aldrich at Dewatto, Washington, June 7, 1906. Four paratypes from Olga and Friday Harbor, Washington, May and June, differ in having three submarginal cells. However, in two of these specimens there are three submarginals in one wing and two in the other. A poorly preserved specimen in the National Museum, from Ungava Bay, Hudson Strait, having three submarginal cells, differs in that the legs are brownish instead of fully black.

This species agrees fairly well with Walker's brief description of *longipes*, except for the decidedly brown and not gray color of the wings and the lack of gray pollinosity of the legs. Osten Sacken suggested that Walker's species is the same as Loew's *simplex*, but the latter has the mesonotum evitate.

4. Halteres reddish; veins feebly undulating; knees black 5.
 Halteres with black knob; veins not undulating;
 thorax bivittate; femora ♂ with setulæ 6.
5. Thorax bivittate with brown; stigma almost obsolete,
 anterior crossvein at basal fourth of the discal cell. *HYDRODROMIA CONJUNCTA*, Loew.
 Thorax with the median white vitta only; stigma
 distinct, anterior crossvein at the basal third of the
 discal cell. *HYDRODROMIA TAOS*, Melander.
6. Discal cell blunt; hind tibiæ setose 7.
 Discal cell with narrow end; hind tibiæ not setose;
 third submarginal cell four times as long as its
 costal breadth. *HYDRODROMIA LONGIFURCA*, nov. sp. (1).
7. Stigma well developed and distinct from the cloudings,
 second submarginal cell two and a half times as
 long as its breadth along the costa; knees black. . . *PHÆOBALIA LECTA*, Melander.
 No stigma, second submarginal cell four times as long
 as its breadth along the costa; knees reddish . . . *HYDRODROMIA BINOTATA*, Loew.
8. Acrostichals biseriate, scutellum with discal setulæ;
 second posterior cell acutely pointed; face deeply
 excised at oral margin; femora and tibiæ without
 setulæ *PHILOLUTRA SIMPLEX*, Loew.
 Acrostichals wanting, face less deeply excised 9.
9. Legs entirely black; halteres black; veins not undu-
 lating 10.
 Legs brown or reddish, or at least the knees brownish;
 discal cell equal to or shorter than the second
 posterior 22.
10. Discal cell longer than the second posterior; thorax
 not vittate; stigma faint; front femora with a sub-
 apical group of setulæ, middle femora setulose,
 pulvilli vestigial 11.
 Discal cell equal to or shorter than the second posterior 12.
11. Empodium of posterior legs short but visible; wings
 clear hyaline, anal vein stronger. *BERGENSTAMMIA DOLICHERETMA*, Melander.

(1) *Clinocera (Hydrodromia) longifurca*, nov. sp. — Male. Length 3.5 mm. Dark olivaceous brown above, slaty gray below. Front uniformly dark brown, face white pruinose, a narrow crescent-shaped mark beneath the antennæ extending to the orbits, vertical bristles moderately coarse; cheeks very small, separated from the face; third joint of the antennæ oval, arista rather slender, less than twice as long as the antennæ; palpal hairs inconspicuously black. Thorax with two dark vittæ; pectal hairs very short and sparse; all the hairs of the abdomen pale; ventral piece of the epipygium conical, middle valves small, dorsal valves long and narrow, shining black. Legs entirely black, hairs of the front coxæ short and sparse, front tibiæ nearly as long as the femora, front femora with seven fine short black setæ and six white hairs, all uniformly distributed, both sides of the hind tibiæ with short setæ along the outer half, empodium prominent and yellow. Halteres black. Wings rather strongly brown, veins firm and blackish, three submarginal cells, the second narrow and four times as long as its width along the costa, discal cell three times as long as broad, a little shorter than the sessile second posterior cell, its posterior oblique crossvein strongly curved so that the apex of the discal cell has parallel sides, sections of the fifth vein equal, anal crossvein recurved, anal vein short and rather faint.

Type from Mount Washington, New Hampshire, Mrs. Annie T. Slosson, collector. Two females from same locality were collected by C. W. Johnson, 4 July, 1914. A female in the collection of C. W. Johnson, from Nain, Labrador, has no setæ on the femora and the discal cell is a trifle less drawn out at the apex.

- Empodium of posterior legs wanting; wings infumated,
anal vein weak BERGENSTAMMIA BRUNNIPENNIS, nov. sp. (1).
12. Front femora with conspicuous spinous setulae 13.
Front femora with no or but few setulae 18.
13. Face entirely white; stigma more or less evident 14.
Face darker in the middle or yellow above, vertex
without a dark picture; thorax at most weakly
bivittate; no stigma (if stigma is well developed and
wings are spotted see *lecta* ♂) 15.
14. Vertex pictured; thorax not vittate; front tibiae ♂
with a long comb of hairs; arista longer than the
antennae CHAMÆDIPSIA COMATA, nov. sp. (2).
Vertex uniformly brown; thorax bivittate; arista as
long as the antennae CLINOCERA PRASINATA, nov. sp. (3).

(1) *Clinocera (Bergentammia) brunnipennis*, nov. sp. — Male. Length 5 mm. Front, vertex and upper occiput dark brown, ocellar tubercle flanked by a weak cinereous spot, face entirely white, rather narrow, not carinate or tuberculate, the lower edge nearly transverse, distinctly separated from the cheeks which measure about one-eighth the eye-height; upper occiput with bristles and setulae, sides with silky yellow hairs, lower part bare; palpi with short black hairs, proboscis rather large; third joint of the antennae oval, shorter than deep, without an end-process, the arista more than twice as long as the antenna, slender and tapering. Thorax not vittate, dull brown above, including the metanotum, bristles rather weak, five or six dorsocentrals, no setulae, only one notopleural; pectus nearly bare. Sides of the abdominal segments marked with cinereous, centrally brown, epipygium small, ventral piece and base of the penis thickened, black, middle valve small, shining apically, dorsal valve narrow, corneous, shining black, incurved apically, the inner surface rugose. Legs black, hairs of the front coxae short and pale, front femora of the male with a row of flexor setulae on the basal half and distally with an irregular group of thorn-like setae, front tibiae nearly as long as the femora, denticulate within, posterior femora with loose irregular short but strong setae, middle tibiae with scattered setulae, hind tibiae with a preapical pair of bristles, pulvilli wanting, empodium of the front legs one-half as long as the claws and brown, of the posterior legs microscopic, claws black. Wings short and narrow, with a brown tinge, stigma weak, brown, but distinct, basal bristle short, costal setulae small, first vein ending at the middle, two submarginal cells, the second small, discal cell blunt, long and narrow, longer than the sessile second posterior cell, sections of the fifth vein 2 : 1, anal cell with curved apex, anal vein very faint but nearly reaching the margin.

Five specimens; Palo Alto, California, August, received from Professor Doane.

(2) *Wiedemannia (Chamaedipsa) comata*, nov. sp. — Male. Length 4 mm. Of the usual olivaceous brown and slaty color, the front tibiae ♂ bearing a row of long hairs on the apical half, front pictured. Face entirely white pruinose, carinate below, the oral margin not notched at the middle, cheeks one-fourth the eyeheight, notched, but separated from the face only by a suture; front and vertex velvety black, but the front marked with a white spot almost enclosing the ocellar tubercle and the vertex with a post-ocellar stripe which meets the gray of the occiput; upper bristles short but strong and with a few intermixed setulae, lower hairs long fine sparse and yellow; third antennal joint rounded oval, without a terminal process, the arista thick, even enlarged apically, one-half longer than the antenna; hairs of the palpi black and conspicuous. Two or three minute acrostichal setulae in front, six dorsocentrals, four scutellars and a few discal and marginal fine setulae, a group of five notopleurals, metapleural hairs numerous and yellowish-brown, pectal hairs sparse. Discal setulae of the abdomen sparse and black, ventral and lateral hairs yellow; epipygium large, erect, ventral piece almost cylindrical, the penis blackish, middle valves convex, oval, bearing black hairs, surmounted by the irregular five-pronged jet black upper valve. Hairs of the front coxae short and yellow, legs black, of the male the front femora provided with a dense brush of setae at the basal third of the under side beyond which are a few spine-like setae, the front tibiae with an extensor row of very long closely placed black hairs and within with numerous stiff setae and with preapical denticles, posterior femora almost bristleless, hind tibiae with a few short stiff preapical setae, in the female the front legs lack the excessive ornamentation, the inner side of the femora with loose but stiff setae and the under side of the tibiae with minute closely placed setulae, empodium yellow and long, claws entirely black. Wings very long, slender, with light brownish tinge, basal bristle small, costal setulae minute, stigma very faint, first vein ending at the basal two-fifths of the wing, two submarginal cells, the second long and rather narrow, discal cell narrow, not pointed, three-fourths as long as the second posterior, sections of the fifth vein nearly equal, anal cell apically with a uniform curve, anal vein thin but strong, vanishing half way to the margin.

Four specimens of this interesting species were taken by Professor J. M. Aldrich on Mount Rainier, Washington, August 3, 1905, at an altitude of 5000 feet.

(3) *Clinocera prasinata*, nov. sp. — Male. Length 4 mm. Olivaceous green, changeable in color from cinereous along the flanks to brownish dorsally. Face silvery white, front brownish, more gray when viewed from behind, no

15. Center of the face with a black spot; wings slightly infumated, auxiliary cell dark; setæ of the front femora and the hind tibiæ less pronounced basally. 16.
 Face unicolorous; wings hyaline; front femora with about nine uniform short setæ, bristles of the hind tibiæ on the apical three-fifths CLINOCERA OLIVACEA, nov. sp. (1).
16. Palpi with numerous black hairs; under side of the front femora ♂ with many minute thorn-like setulæ on the basal half, hind femora with three or four subapical flexor bristles 17.
 Palpi with short sparse pale hairs; front femora without thorn-like setulæ, hind femora with two subapical flexor bristles CHAMÆDIPSIA MINOR, nov. sp. (2).
17. Thorn-like setulæ of the front femora not in a regular row, with some coarse setæ intermixed; facial tubercle distant from the oral margin, the center of the face carinate beneath the tubercle, the upper part of the face brownish ♂ or cinereous ♀. . . . CHAMÆDIPSIA HAMIFERA, nov. sp. (3).

vertical bristles, the occipital series sparse; cheeks narrow, with complete suture, palpi large, clavate, with sparse short black hairs; third joint of the antennæ ovate, shorter than broad, without an end-process, the arista thick and scarcely longer than the antenna. Viewed from in front the mesonotum is bilineate, the middle stripe not cinereous, five dorsocentrals, no setulæ, metanotum and pleuræ cinereous, metapleural hairs dense and yellow, pectus and front coxæ with sparse yellow hairs. Abdomen greenish cinereous; epipygium large, the lower piece large, conical and projecting, penis black, slender from its base, its middle third hidden, the apical deflected part thin, middle lamellæ broadly oval, erect, rather hairy, the upper pieces broad but short, shining black. Legs black, more or less cinereous basally, front femora with regular biseriate short flexor bristles, front tibiæ as long as their femora, with close uniform short flexor and extensor setulæ, posterior femora without bristles, hind tibiæ with about ten extensor setulæ on the outer half, pulvilli and empodium moderately large. Calypteres blackish, with a pale fringe; halteres black. Wings with a slight infumation, veins strong and blackish, costal setulæ small, stigma very weak, two submarginal cells, third and fourth sections of the costa subequal, discal cell shorter than the sessile second posterior cell, sections of the fifth vein equal, anal vein a weak fold nearly reaching the margin.

One specimen, received from Dr. J. M. Aldrich, who collected it at Mono Lake, California, July 23, 1911.

(1) *Clinocera olivacea*, nov. sp. — Female. Length 3.5 mm. Olivaceous brown, abdomen, pleuræ and base of the legs cinereous-white, face and cheeks cinereous, separated by a suture, vertex brown, with strong ocellar vertical and occipital bristles, third joint of the antennæ triangularly oval, as long as broad, without a process, the arista thick and slightly longer than the antenna; palpi with short brownish hair. Five dorsocentral bristles, no setulæ, metapleural hairs pale yellow. Prosternum and coxæ with conspicuous golden hair, under side of the front femora with two series of about nine short setæ disposed along its length, front tibiæ nearly as long as their femora, outwardly with short uniform setæ, posterior femora bristleless, hind tibiæ with about eleven extensor setæ on the apical three-fifths, pulvilli and empodium moderate. Wings hyaline, veins weak, no stigma, costal setulæ small, two submarginal cells, the second to the fifth costal sections proportioned 4 : 1 : 1.4 : 1.2, discal cell rather broad, a little shorter than the sessile second posterior cell, sections of the fifth vein proportioned 1 : 1.2, anal vein reflexed more than usual, the anal vein rather strong continuing as a fold almost to the margin.

One specimen, Muir Inlet, Alaska, Trevor Kincaid, collector.

(2) *Wiedemannia (Chamædipsia) minor*, nov. sp. — Male. Length 3 mm. Related to *hamifera*, but differing as follows: face brownish cinereous, the lower sides when viewed from in front browner than the rest, when viewed from below concolorous, the dark central stripe and the carina less evident, margin excised; palpi with fewer and pale hairs; apical process of the third antennal joint less pronounced. No humeral setulæ, metapleural and pectal hairs less developed. Front femora and tibiæ without the flexor denticles, the front femora with nine setæ uniformly distributed, no long yellow hairs. Discal cell three-fourths as long as the second posterior, anal crossvein less strongly recurved, the lower end of the anal cell obtusely angulate.

One specimen, received from Professor O. A. Johannsen, who collected it at Ithaca, New York.

(3) *Wiedemannia (Chamædipsia) hamifera*, nov. sp. — Male. Length 4 mm. Brownish above, the thorax not vittate, cinereous below. Upper half of the face light brown in the male and cinereous in the female, sides below cinereous white, but slightly longer than broad between the antennæ and the center of the tubercle, center tubercle black

- Thorn-like setulae ♂ forming a regular, uniform, conspicuous row, of ♀ seriate but microscopic in size; facial tubercle not conspicuous, located nearer the emarginate oral margin, the lower part of the face scarcely carinate, the upper part white . . . *CHAMÆDIPSIA CTENISTES*, nov. sp. (1).
18. Thorax bivittate . . . 19.
 Thorax not vittate; wings hyaline, no stigma . . . 21.
19. Wings maculate, stigma very distinct; face entirely white . . . *HYDRODROMIA LECTA*, Melander.
 Wings not spotted, no stigma; face brownish above . . . 20.
20. Legs black; wings lightly infumated . . . *CLINOCERA TRUNCA*, nov. sp.
 Legs hoary; wings slightly gray . . . ? *HYDRODROMIA LONGIPES*, Walker.
21. Second posterior cell very acute at the proximal end; face not tuberculate . . . *CLINOCERA LEPIDA*, Melander.
 Second posterior cell sessile; center of the face black and strongly tuberculate . . . *CHAMÆDIPSIA GUBERNANS*, nov. sp. (2).

and epistome strongly carinate, its margin not incised, cheeks one-fourth the eye-height, a faint suture present, palpi cylindrical, with abundant rather long black hair, upper part of the head brown, the upper bristles strong and interspersed with setulae; third joint of the antennae onion-shaped, the apical process long, arista one-half longer than the antennae, thick at the base only. Six dorsocentral bristles, no acrostichals, no scutellar or lateral setulae except a couple on the humeri; prosternum and metapleurae with numerous long yellow hairs. Abdomen with yellow lateral hairs and black discal setulae, epipygium small, the terminal keel short, lateral valves with long loose yellow hairs, upper valves shining black, with slender pointed converging end-processes. Front coxae with abundant yellow hair, legs black, front tibiae nearly as long as their femora, in both sexes the under side of the front femora densely and irregularly set with short thorn-like setulae, interspersed with stronger setae especially toward the apex, and basally with a few long yellow hairs also, inner side of the front tibiae uniformly and densely provided with minute setulae, posterior femora with a few strong flexor setae and hind tibiae with a preapical bristle on each side, pulvilli small but the empodium large and white. Halteres with black knob and reddish root; cilia of the calypteres very sparse and yellow. Wings long and narrow, with a brownish tinge, costal setulae moderate, no stigma, two submarginal cells, the second very narrow, discal cell blunt, two-thirds as long as the sessile second posterior cell, sections of the fifth vein 1 : 0.6, anal crossvein strongly recurved, anal vein faint, vanishing half way to the margin.

Thirty specimens; Beaverkill and Ithaca, New-York; Middletown, Connecticut; Mosehead Lake, Maine : from F. T. Cresson, Jr., C. W. Johnson, and O. A. Johannsen. Mr. Johnson states that the species swarmed over cut logs in a log-run on Mosehead Lake, so as to blacken the surface by their numbers.

(1) *Wiedemannia (Chamædipsia) ctenistes*, nov. sp. — Male. Length 3 mm. Closely related to *hamifera* but differs as follows: face narrower, from the antennae to the center of the tubercle the face of the male is obviously longer than wide, the tubercle much less pronounced and located near the strongly notched oral margin, carina of the epistome not conspicuous, face of both sexes when viewed from in front uniformly white pruinose, except the tubercle, when viewed from below with a narrow dark median vitta. Palpi with finer hairs. Thorax with a trace of two vittae. End process of the dorsal valves of the epipygium nearly straight. The flexor setulae of the front femora of the male are stronger and uniformly arranged in a conspicuous single straight row along the basal three-fifths, beyond which occur four or five strong thorn-like setae; in the female the setulae are greatly reduced but still are seriatly arranged, without interspersed strong setae; hind femora with about three preapical bristles.

Five specimens, collected by C. W. Johnson at Hanover, New Hampshire. Paratypes placed in the Boston Society of Natural History and in Mr. Johnson's collection.

(2) *Wiedemannia (Chamædipsia) gubernans*, nov. sp. — Male. Length 3.5 mm. Olivaceous brown above, slaty below. Face dark cinereous, strongly tuberculate, lower margin carinate and entire, a fairly deep incision separating the cheeks, which measure about one-seventh the eye-height; palpi large, villose and with a few short dark hairs, sides of the proboscis likewise villose; third joint of the antennae spongy pubescent, short, onion-shaped, with a lengthened terminal process, the arista thick and blunt and slightly longer than the antenna; bristles of the upper half of the head strong, four pairs of postocellar setulae. Setulae present in the dorsocentral rows, no scutellar setulae, some posthumeral setulae present, metapleural hairs yellowish, pectus bare but the propleurae with four or five setulae. Epipygium with a long drawn-out keel, penis slender and brown, middle valves ovate, upper valves rather large, convex, opaque. Coxae with short sparse blackish hairs, legs black, front tibiae seven-eighths as long as their femora, femora without setae, hind tibiae scarcely setulose.

22. Thorax with two conspicuous shining vittæ; veins undulating, wings brown; legs without bristles; face broad and pure white *CLINOCERA LINEATA*, Loew.
 Thorax pollinose, no shining vittæ. 23.
23. Front femora with a basal group of setulæ, hind tibiæ with flexor setulæ; wings more or less spotted 24.
24. Thorax with a median cinereous line; upper part the face dark *HYDRODROMIA MACULATA*, Loew.
 Thorax bivittate; face entirely silvery. *HYDRODROMIA STAGNALIS*, Haliday.
25. Thorax not vittate; face dark; wings uniformly subfuscous, costal setulæ barely visible; three small flexor setulæ on the outer third of the hind tibiæ; arista thickened *CLINOCERA FUSCIPENNIS*, Loew.
 Thorax bivittate; face entirely white 26.
26. Wings with a spot at the base of the second submarginal cell and at the apex of the discal cell, the second submarginal cell as long as the second basal; legs black, the knees brown *HYDRODROMIA GENUALIS*, Coquillett.
 Wings uniformly brown; second submarginal cell longer than the second basal; legs brown. *PHÆOBALIA BREVITIBIA*, nov. sp. (1).

Geographical distribution.

SUBGENUS BERGENSTAMMIA

1. *B. brunnipennis*, nov. sp. California.
 2. *B. dolichereitma*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 241 [1902] Idaho.
 (*Clinocera*); Kertész, Cat. Dipt. Vol. 6, p. 125 [1909] (*Röderia*);
 Engel, Deutsche Ent. Zeitschr. 1918, p. 198 [1918] (*Roederella*).

pulvilli and empodium moderate in size and brown. Halteres black, hairs of the calypteres sparse and brownish. Wings with a brownish tinge, a very faint darker cloud suffusing the crossveins, veins strongly brown, no costal setulæ, first vein ending beyond the middle of the wing, two submarginal cells, second to the seventh sections of the costa proportioned, 4 : 1 : 1.2 : 1 : 1.8 : 1.9, discal cell much shorter than the broadly sessile second posterior cell, sections of the fifth vein, 1 : 0.6, anal vein represented only by a very faint fold, anal crossvein strongly recurved.

One specimen, Nelson, British Columbia, July 17, 1910.

(1) *Clinocera* (*Phæobalia*) *brevitibla*, nov. sp. — Length 2.5 mm. Front, vertex and upper occiput a dark slaty brown, ocellar bristles long, a single row along the occipital and vertical orbits, one pair of central vertical bristles, setulæ sparse, lower occiput nearly bare; face cinereous, separated from the narrow cheeks, the lower margin transverse and not emarginate; hairs of the palpi minute, sparse, brown; third joint of the antennæ onion-shaped, with a distinct apical projection, arista thick, very slightly tapering, nearly twice as long as the antenna. Dorsum dark brown, marked with two velvety black vittæ which are abruptly interrupted at the prescutellar depression, intervittal space a little more grayish anteriorly, a white spot in front of the wings, metanotum cinereous; five strong dorsocentral bristles, no setulæ, pectus with a few hairs, upper pleuræ brownish. Abdomen entirely blackish gray, its hairs very sparse, epipygium small, incumbent, ventral piece conical, penis brown, middle valve oval, subshining, dorsal valve clavate, villose, only subshining. Legs including the coxæ brownish, hairs of the front coxæ sparse, in the male the front femora with about six spinous flexor setæ, the front tibiæ about five-sixths as long as the femur and slightly shorter than the basal two joints of their tarsi, closely and minutely setulose within, apical half of the hind tibiæ setose on both sides, hind metatarsi with eight flexor setulæ; in the female the front legs are devoid of the flexor bristling and the setæ of the hind legs are much reduced. Wings oval, with a decided brown tinge, stigma elongate, weak, basal bristle long, costal setulæ minute, first vein ending at the middle of the wing, two submarginal cells present, discal cell blunt, as long as the broadly sessile second posterior cell, sections of the fifth vein nearly 3 : 1, anal crossvein recurved, no anal vein.

Five males, one female; Olga and Tacoma, Washington, July and August.

3. *B. multiseta*, Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 104 (1892); Strobl, ibidem, Vol. 34, p. 209 (1898); Engel, Deutsche Ent. Zeitschr. 1918, p. 78, f. 25 (1918). C. Europe.
4. *B. nudipes*, Loew, Wien. Ent. Monatschr. Vol. 2, p. 386 [1858] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 326 (1881); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 103 (1898); Engel, Deutsche Ent. Zeitschr. 1918, p. 76, f. 23, 24 (1918). C. & S. Europe.

SUBGENUS CLINOCERA

1. *C. appendiculata*, Zetterstedt, Fauna Ins. Lappon. p. 559 [1838] (*Wiedemannia*); Dipt. Scand. Vol. 1, p. 367 [1842] (*Wiedemannia*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 247, note (1858); Zetterstedt, Dipt. Scand. Vol. 13, p. 5005 [1859] (*Wiedemannia*); Siebke, Nyt Mag. Naturvid. Vol. 12, p. 153 [1864] (*Wiedemannia*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 325 (1881); Pokorný, ibidem, Vol. 37, p. 394 (1887); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, 1892, p. 100 (1893); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 148, 279 (1899); Wahlgren, Ent. Tidskr. Vol. 31, p. 82 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 61, f. 10, 11 (1913); Engel, Deutsche Ent. Zeitschr. 1918, p. 25, f. 7 [1918] (*Atalanta*). Europe.
- var. *aucta*, Zetterstedt, Dipt. Scand. Vol. 8, p. 3019 [1849] (*Brachystoma*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 247, note 4 (1858); Wahlgren, Ent. Tidskr. Vol. 31, p. 28, f. 1, p. 82, f. 13 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 61, f. 12 (1913); Engel, Deutsche Ent. Zeitschr. 1918, p. 29 [1918] (*Atalanta*). N. Europe
- var. *simplicinervis*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 62, f. 13 (1913). Lapland.
- var. *Storchii*, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 348 (1880); Mik, ibidem, Vol. 31, p. 325 (1881); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 100 (1893); Engel, Deutsche Ent. Zeitschr. 1918, p. 28 [1918] (*Atalanta*). C. Europe.
2. *C. aquatica*, Becker, Ann. Soc. Ent. France, Vol. 83, p. 122 [1914] (*Atalanta*); Oldenberg, Deutsche Ent. Zeitschr. 1919, p. 392 [1919] (*Atalanta*). E. Africa.
3. *C. bivittata*, Loew, Wien. Ent. Monatschr. Vol. 8, p. 259 (1865); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 325 (1881); Engel, Deutsche Ent. Zeitschr. 1918, p. 31 [1918] (*Atalanta*). Siberia, Europe.
4. *C. fluviatilis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 34 (1913); Engel, Deutsche Ent. Zeitschr. 1918, p. 32 (1918); Brunetti, Fauna Brit. India Dipt. Vol. 1, p. 365, f. 33 (1920). W. Himalayas.
5. *C. fuscipennis*, Loew, Zeitschr. Ges. Naturw. Vol. 48, p. 324 (1876); Melander, Trans. Am. Ent. Soc. Vol. 28, p. 245 (1902); Engel, Deutsche Ent. Zeitschr. 1918, p. 33 (1918). E. United States.
6. *C. lineata*, Loew, Berl. Ent. Zeitschr. 1862, p. 207; Cent. 2, No. 50 (1862); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 244, f. 61, 62 (1902); Engel, Deutsche Ent. Zeitschr. 1918, p. 34 (1918). N. America.
7. *C. nigra*, Meigen, Classif. Besch. Eur. Zweifl. Ins. Vol. 1, p. 292, 1, pl. 14, f. 20-25 (1804); Syst. Besch. Vol. 2, p. 113, 1, pl. 16, f. 4 (1820); Macquart, Hist. Nat. Dipt. Vol. 1, p. 433, 1, pl. 10, f. 17 (1834); Blanchard, Hist. Nat. Ins. Vol. 3, p. 604 (1840); Loew, Wien. Ent. Monatschr. Vol. 2, p. 254, note 3 (1858); Schiner, Fauna Dipt. Austr. Vol. 1, p. 85 (1862); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 325, pl. 16, f. 4, 5 (1881); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 101 (1893); Lundbeck, Dipt. Dan.

- Vol. 3, p. 217, f. 89 (1910); Engel, Deutsche Ent. Zeitschr. 1918, p. 21, f. 5 [1918] (*Atalanta*).
- Robertii*, Macquart, Hist. Nat. Dipt. Vol. 2, p. 657 [1835] (*Paramesia*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 254 (1858); Meigen, Syst. Besch. Vol. 7, p. 79 [1858] (*Brachystoma*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 84 (1862).
- unicolor*, Curtis, Brit. Ent. p. 513 [1834] (*Heliodromia*); Walker, List Dipt. Brit. Mus. Vol. 3, p. 504 [1849] (*Heleodromia*); Ins. Brit. Vol. 1, p. 106 [1851] (*Heleodromia*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 245, note (1858); Schiner, Fauna Dipt. Austr. Vol. 1, p. 83 [1862] (*Hemerodromia*).
- var. *rufipes*, Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 147 (1899); Engel, Deutsche Ent. Zeitschr. 1918, p. 24 [1918] (*Atalanta*). S. Europe.
8. *C. ?obscura*, Brunetti, Rec. Indian Mus. Vol. 9, p. 34 (1913); Engel, Deutsche Ent. Zeitschr. 1918, p. 36 (1918); Brunetti, Fauna Brit. India Dipt. Vol. 1, p. 366 (1920). W. Himalayas.
9. *C. olivacea*, nov. sp. Alaska.
10. *C. prasinata*, nov. sp. California.
11. *C. riparia*, Robert, Ann. Soc. Ent. France (1), Vol. 5, p. 537 [1836] (*Paramesia*). S. W. Europe.
12. *C. trunca*, nov. sp. Washington.

SUBGENUS HYDRODROMIA

- *H. bicincta*, Tucker, Kansas Univ. Sc. Bull. Vol. 14, p. 97 [1907] (*Clinocera*, no description).
1. *H. binotata*, Loew, Zeitschr. Ges. Naturw. Vol. 48, p. 325 [1876] (*Clinocera*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 243 [1902] (*Clinocera*); Engel, Deutsche Ent. Zeitschr. 1918, p. 46 (1918). North America.
2. *H. conjuncta*, Loew, Wien. Ent. Monatschr. Vol. 4, p. 80 [1860] (*Clinocera*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 242, 346 [1902] (*Clinocera*); Engel, Deutsche Ent. Zeitschr. 1918, p. 62 [1918] (? *Phæobalia*). E. North America.
3. *H. diteniata*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 387, f. 13 [1909] (*Heleodromia*); Engel, Deutsche Ent. Zeitschr. 1918, p. 46 (1918). Bolivia.
4. *H. fontinalis*, Haliday, Ent. Mag. London, Vol. 1, p. 160 [1833] (*Heleodromia*); Curtis, Brit. Ent. p. 513 [1834] (*Heleodromia*); Walker, Ins. Brit. Vol. 1, p. 105 [1851] (*Heleodromia*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 256 [1858] (*Clinocera*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 84 [1862] (*Clinocera*); Loew, Besch. Eur. Dipt. Vol. 1, p. 271, note [1869] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 326 [1881] (*Heleodromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 83 [1910] (*Heleodromia*); Engel, Deutsche Ent. Zeitschr. 1918, p. 41 (1918). Europe.
- Wesmalii*, Zetterstedt, Dipt. Scand. Vol. 1, p. 364, part [1842] (*Brachystoma*).
5. *H. genualis*, Coquillett, Proc. Ent. Soc. Wash. Vol. 12, p. 124 [1910] (*Clinocera*); Engel, Deutsche Ent. Zeitschr. 1918, p. 37 [1918] (*Clinocera*). Alberta.
6. *H. longifurca*, nov. sp. New Hampshire,
7. *H. ?longipes*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 504 [1849] (*Heleodromia*); Osten-Sacken, Cat. Dipt. N. Amer. p. 106 [1878] (*Clinocera*). Canada. [Labrador.
8. *H. maculata*, Loew, Wien. Ent. Monatschr. Vol. 4, p. 79 [1860] (*Clinocera*); Glover, Manuscr. Notes, p. 15, pl. 6, f. 8 [1874] (*Clinocera*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 244 [1902] (*Clinocera*); Engel, Deutsche Ent. Zeitschr. 1918, p. 48 (1918). United States.

9. *H. nivalis*, Zetterstedt, Fauna Ins. Lappon. p. 545 [1838] (*Hemerodromia*); Europe.
Dipt. Scand. Vol. 1, p. 325 [1842] (*Ardoptera*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 8 [1858] (*Clinocera*); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 155 [1861] (*Ardoptera*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 85 [1862] (*Clinocera*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 62, f. 15 (1913); Engel, Deutsche Ent. Zeitschr. 1918, p. 44 (1918).
10. *H. stagnalis*, Haliday, Ent. Mag. London, Vol. 1, p. 159 [1833] (*Heleodromia*); Europe, Greenland.
Curtis, Brit. Ent. p. 513 [1834] (*Heleodromia*); Macquart, Hist. Nat. Dipt. Vol. 2, p. 658 (1835); Meigen, Syst. Besch. Vol. 7, p. 93 [1838] (*Hemerodromia*); Walker, List Dipt. Brit. Mus. Vol. 3, p. 504 [1849] (*Heleodromia*); Ins. Brit. Vol. 1, p. 105, pl. 3, f. 6 [1851] (*Heleodromia*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 246, 4 [1858] (*Clinocera*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 84 [1862] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 326, pl. 16, f. 6-7, [1881] (*Heleodromia*); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 101 [1892] (*Heleodromia*); Lundbeck, Vidensk. Meddel. p. 297 [1898] (*Clinocera*); Strobl, Wien. Ent. Zeit. Vol. 18, p. 77 [1899] (*Heleodromia*); Coquillett, Proc. Ent. Soc. Washington, Vol. 5, p. 264 (1903); Lundbeck, Dipt. Dan. Vol. 3, p. 219, f. 90 [1910] (*Heleodromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 82 [1910] (*Heleodromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 63 [1913] (*Heleodromia*); Engel, Deutsche Ent. Zeitschr. 1918, p. 39, f. 9 (1918).
appendiculata, Hansen (not Zetterstedt), Naturh. Tidskr. (3), Vol. 13, p. 259 [1880] (*Heleodromia*).
Westermanni, Zetterstedt, Fauna Ins. Lappon. Vol. 558 [1838] (*Brachystoma*); Dipt. Scand. Vol. 1, p. 360 [1842] (*Brachystoma*); ibidem, Vol. 8, p. 3019 [1849] (*Brachystoma*); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 162 [1861] (*Brachystoma*).
11. *H. taos*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 242 [1902] (*Clinocera*); New Hampshire.
Engel, Deutsche Ent. Zeitschr. 1918, p. 49 (1918).
12. *H. undulata*, nov. sp. Idaho, Washington.
13. *H. Wesmælii*, Macquart, Hist. Nat. Dipt. Vol. 2, p. 656, pl. 24, f. 17 Europe.
[1835] (*Paramesia*); Meigen, Syst. Besch. Vol. 7, p. 79 [1838] (*Brachystoma*); Zetterstedt, Dipt. Scand. Vol. 1, p. 364, part [1842] (*Brachystoma*); Loew, Zeitschr. Ges. Naturw. Vol. 8, p. 100 [1857] (*Clinocera*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 257 [1858] (*Clinocera*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 85 [1862] (*Clinocera*); Nowicki, Verh. Nat. Ver. Brünn, Vol. 6, pl. 2, f. 5 [1868] (*Clinocera*); Loew, Besch. Dipt. Vol. 1, p. 271, note [1869] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 362 (1881); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 101 (1893); Lundbeck, Dipt. Dan. Vol. 3, p. 220, f. 91 [1910] (*Heleodromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 82 [1910] (*Heleodromia*); Verrall, Ent. Mag. London, Vol. 48, p. 26 [1912] (*Clinocera*); Engel, Deutsche Ent. Zeitschr. 1918 p. 43 [1918] (*Heleodromia*).
nebulosa, Zetterstedt, Fauna Ins. Lappon. p. 559, note [1838] (*Brachystoma*).

SUBGENUS KOWARZIA

1. *K. amarantha*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 4, p. 43, pl. 1, f. 10 Canary Islands.
(1908); Engel, Deutsche Ent. Zeitschr. 1918, p. 73 (1918).
2. *K. barbatula*, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 347 [1880] Europe.
(*Clinocera*); Mik, ibidem, Vol. 31, p. 325, pl. 16, f. 1-3 (1881); Brocher,

- Bull. Soc. Zool. Genève, Vol. 1, p. 115-117 (1908); Strobl, Verh. Zool.-bot. Wien, Vol. 59, p. 178 (1909); Bezzi, Arch. Zool. Expér. Paris (5), Vol. 8, p. 50 (1911); Engel, Deutsche Ent. Zeitschr. 1918, p. 68, f. 20 (1918).
- var. *securigera*, Engel, Deutsche Ent. Zeitschr. 1918, p. 70 (1918). C. Europe.
3. *K. bipunctata*, Haliday, Ent. Mag. London, Vol. 1, p. 159 [1833] (*Heleodromia*); Curtis, Brit. Ent. Vol. 8, p. 513 [1834] (*Heliodromia*); Macquart, Hist. Nat. Dipt. Vol. 2, p. 658 [1835] (*Hydrodromia*); Meigen, Syst. Besch. Vol. 8, p. 93 [1838] (*Hemerodromia*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 251 [1858] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 325 (1881); Wahlgren, Ent. Tidskr. Vol. 31, p. 83 (1910); Engel, Deutsche Ent. Zeitschr. 1918, p. 65, f. 16 (1918). Europe.
- tenella*, Wahlberg, Ofv. Vet. Akad. Förh. Stockholm, Vol. 1, p. 107 [1844] (*Paramesia*); Zetterstedt, Dipt. Scand. Vol. 8, p. 3020 [1849] (*Brachystoma*); Loew, Wien. Ent. Monatschr. Vol. 2, p. 252, note 1 [1858] (*Clinocera*); Wahlgren, Ent. Tidschr. Vol. 31, p. 28 (1910).
- Zetterstedti*, Walker (not Fallen), Ins. Brit. Vol. 1, p. 105, 252 [1851] (*Heleodromia*).
4. *K. hæmorrhoidalis*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 4, p. 189, pl. 4, f. 60 (1908); Engel, Deutsche Ent. Zeitschr. 1918, p. 74 (1918). Madeira.
5. *K. plectrum*, Mik, Ver. Zool.-bot. Ges. Wien, Vol. 30, p. 347 [1880] (*Clinocera*); Mik, ibidem, Vol. 31, p. 325 (1881); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 101 (1893); Engel, Deutsche Ent. Zeitschr. 1918, p. 71, f. 22 (1918). C. Europe.
6. *K. Schnabli*, Becker, Deutsche Ent. Zeitschr. p. 646 (1910); Engel, ibidem, 1918, p. 74 (1918). Corsica.
7. *K. tibiella*, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 348 [1880] (*Clinocera*); ibidem, Vol. 31, p. 325 (1881); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 101 (1892); Engel, Deutsche Ent. Zeitschr. 1918, p. 67, f. 17, 18, 19 (1918). C. & S. Europe.

SUBGENUS PHÆOBALIA

1. *P. brevitibia*, nov. sp. Washington.
2. *P. dimidiata*, Loew, Besch. Eur. Dipt. Vol. 1, p. 271 [1869] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 326 (1881); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 103 (1893); Engel, Deutsche Ent. Zeitschr. 1918, p. 51, f. 10 (1918); Oldenberg, ibidem, 1919, p. 391 (1919). C. & S. Europe.
- picta*, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 102 (1893); Oldenberg, Arch. Naturg. Berlin, Vol. 80 (9), p. 92 (1915).
3. *P. inermis*, Loew, Wien. Ent. Monatschr. Vol. 5, p. 349 [1861] (*Clinocera*); Loew, Besch. Eur. Dipt. Vol. 1, p. 271, note [1869] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 19, pl. 4, f. 15 [1869] (*Clinocera*); ibidem, Vol. 31, p. 326 (1881); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 103 (1893); Engel, Deutsche Ent. Zeitschr. 1918, p. 53 (1918). C. & S. Europe.
4. *P. lecta*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 243 (1902); Engel, Deutsche Ent. Zeitschr. 1918, p. 63 (1918). Idaho.
5. *P. peniscissa*, Becker, Berl. Ent. Zeitschr. Vol. 33, p. 335, f. 1, 2 [1889] (*penicissa*); Bezzi, Arch. Zool. Expér. Paris (5), Vol. 8, p. 50 (1911); Engel, Deutsche Ent. Zeitschr. 1918, p. 60, f. 15 (1918). Caves in Dalmatia.
6. *P. Pokornyi*, Mik, Wien. Ent. Zeit. Vol. 5, p. 22 (1886); Engel, Deutsche Ent. Zeitschr. 1918, p. 54, f. 11 (1918). Alps.

7. *P. trinotata*, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 19, p. 24, pl. 4, f. 12, Alps.
14 [1869] (*Clinocera*); ibidem, Vol. 31, p. 326 (1881); Strobl, Mitteil.
Naturw. Ver. Steiermark, Graz, Vol. 29, p. 101 (1893); Engel,
Deutsche Ent. Zeitschr. 1918, p. 58, f. 13, 14 (1918).
8. *P. varipennis*, Nowicki, Verh. Nat. Ver. Brünn, Vol. 6, p. 85, pl. 2, f. 4 C. Europe.
[1868] (*Clinocera*); Loew, Besch. Eur. Dipt. Vol. 1, p. 269 [1869]
(*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 19, p. 326, pl. 4,
f. 13 [1869] (*Clinocera*); Mik, ibidem, Vol. 31, p. 326 (1881); Strobl,
Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 101 (1893); Engel,
Deutsche Ent. Zeitschr. 1918, p. 56, f. 12 (1918).

13. GENUS WIEDEMANNIA, ZETTERSTEDT

- Wiedemannia**, Zetterstedt, Fauna Ins. Lappon. p. 559 (1838); Dipt. Scand. Vol. 1, p. 365 (1842); Walker, Ins. Brit. Dipt. Vol. 1, p. 106 (1851); Rondani, Dipt. Ital. Vol. 1, p. 150 (1856); Bigot, Bull. Soc. Ent. France, Vol. 12, p. 103 (1887); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 258, 262 (1903); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 202 (1904); ibidem, Vol. 3, p. 363, note (1905); Lundbeck, Dipt. Dan. Vol. 3, p. 217 (1910); Kertész, Rovert. Lapok, Budapest, Vol. 18, p. 68 (1911); Engel, Deutsche Ent. Zeitschr. 1918, p. 249 (1918).
- Camelopsis**, Engel, Deutsche Ent. Zeitschr. 1918, p. 14, 232 (1918).
- Chamaedipsia**, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 326 (1881); Bigot, Bull. Soc. Ent. France, Vol. 12, p. 103 (1887); Mik, Wien. Ent. Zeit. Vol. 7, p. 72, note (1889); Mik, ibidem, Vol. 11, p. 55 (1892); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 247, 262 (1903); Kertész, Rovert. Lapok, Budapest, Vol. 18, p. 67 (1911); Engel, Deutsche Ent. Zeitschr. 1918, p. 207 (1918).
- Clinocerella**, Engel, ibidem, p. 14, 238 (1918).
- Eucelidia**, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 326 (1882); Bigot, Bull. Ent. Soc. France, Vol. 12, p. 103 (1887); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 250, 262 (1903); Lundbeck, Dipt. Dan. Vol. 3, p. 217 (1910); Kertész, Rovert. Lapok, Budapest, Vol. 18, p. 68 (1911); Engel, Deutsche Ent. Zeitschr. 1918, p. 199 (1918).
- Orthorhynchium**, Mik, in litt. Engel, ibidem, p. 238 (1918).
- Philolutra**, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 327 (1881); Bigot, Bull. Soc. Ent. France, Vol. 12, p. 103 (1887); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 255 (1903); Kertész, Rovert. Lapok, Budapest, Vol. 18, p. 68 (1911); Engel, Deutsche Ent. Zeitschr. 1918, p. 222 (1918).
- Pseudowiedemannia**, Engel, ibidem, p. 14, 243 (1918).
- Röderella**, Engel, ibidem, p. 13, 79 (1918).
- Röderia**, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 326 (1881); Bigot, Bull. Soc. Ent. France, Vol. 12, p. 103 (1887); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 257, 262 [1903] (*Röderia*); Kertész, Rovert. Lapok, Budapest, Vol. 18, p. 68 [1911] (*Röderia*).

Characters. — Lower part of the head more or less produced beneath the eyes, cheeks not deeply divided by a suture, so that the face is never wholly constricted from the lower occiput; lower edge of the face deeply and broadly excised, the notch filled by a depressed membrane which may be more or less carinate; pulvilli and empodium developed; acrostichals usually present; discal cell usually quite sharp apically, the stigma more or less developed.

The following subgenera are closely related and are not sharply differentiated. *Wiedemannia* of Zetterstedt is not the same genus as *Wiedemannia* of Meigen, 1838 : the latter is *Mintho* Desvoidy.

Subgenus *Wiedemannia* in the strict sense. Stigma large and circular, commencing much beyond the end of the first vein and projecting into the wing so that it touches or passes the second vein, this vein being bent down around the stigma, five or six dorsocentrals alternating with rather long bristles, the anterior acrostichals reclinate unlike those of the prescutellar area, which are proclinate, scutellum with discal setulæ; head prolonged below eyes about the eye-height; terminal lamellæ of epipygium usually tipped with tuft of hairs.

Type species : *W. bistigma*, Curtis. Zetterstedt described two species, *borealis* and *appendiculata*. The former is synonymous with *bistigma* and becomes the type since the latter belongs to the earlier genus *Clinocera*.

SUBGENUS PSEUDOWIEDEMANNIA, ENGEL

Stigma more or less rounded, located much beyond end of first vein, smaller than in *Wiedemannia* and not passing below second vein; at most five dorsocentrals with very weak alternating setulæ; acrostichals biseriate onto the scutellum but either weak or strong; cheeks about half the eye-height.

Type species : *P. lamellata*, Loew, by Engel's designation.

SUBGENUS EUCELIDIA, MIK

Stigma elongate, beginning at the tip of the first vein and not touching the straightened second vein, costal spines strongly projecting; all the femora bearing preapical bristles on the front and hind sides; acrostichals if present all proclinate; scutellum with setulæ in addition to the apical pair of bristles; alternate dorsocentrals small.

Type species : *E. Zetterstedti*, Fallen, by Coquillett's designation, 1903. Mik founded his genus *Roederia* upon *C. longipennis*, Mik. Engel finds that this species is the same as *Eucelidia Escheri*, Zetterstedt. Therefore *Roederia* falls a synonym of *Eucelidia*.

SUBGENUS CLINOCERELLA, ENGEL

Stigma elongate as in *Eucelidia*; legs without distinctive bristles; five or six dorsocentrals with or without alternating setæ; acrostichals more or less developed, scutellum with or without setulæ; head projecting downward half the eye-height and tapering to the proboscis.

Type species : *C. sorex*, Engel, by Engel's designation. Mik used an unpublished name, *Orthorhynchium*, for this group.

SUBGENUS CAMELOPIS, ENGEL

Stigma elongate as in *Eucelidia*; five dorsocentrals with intermediate setæ, acrostichals reaching over scutellum, the anterior ones reclinate, the posterior ones proclinate, rarely the intermediate dorsocentrals weak or wanting; scutellum setulose; humeral bristle long and weak; head strongly projecting downward below the eyes nearly or quite the eye height, in profile rectangular.

Type species : *C. phantasma*, Mik, by Engel's designation.

SUBGENUS PHILOLUTRA, MIK

Stigma elongate, as in the preceding, costal spines smaller; preapical femoral bristles not strong; anterior acrostichals reclinate, the posterior ones proclinate, scutellum with setulæ, five dorsocentrals often with intermixed setulæ, head sometimes greatly drawn out beneath the eyes.

Type species : *P. phantasma*, Mik, Coquillett's designation in 1903. Coquillett made this purely a synonym of *Roederia*, since its main characteristic, the presence of the acrostichal setulæ is inconstant. I retain the name here, like the two following groups, as a matter of convenience. The species are not phyletically distinct, and since the characters chosen are artificial combinations, species occur which do not conform in all respects to the definitions given.

SUBGENUS CHAMÆDIPSIA, MIK

Stigma elongate, as in *Eucelidia*, costal spines not projecting; preapical bristles of the femora with setæ; rows of acrostichals incomplete, at most some reclinate setulæ present on the anterior part of the notum, scutellum typically without setulæ, alternate smaller setulæ usually present in the dorsocentral rows; arista usually blunt at the end.

Type species : *C. hastata*, Mik, the only species originally mentioned.

SUBGENUS RÖDERELLA, ENGEL

Stigma elongate, oval, costal spines rather prominent; preapical bristles of the femora absent, front femora with a comb of three or four bristles near tip; only short anterior acrostichals present, scutellum with marginal setulæ, five dorsocentral bristles present and no intermediate ones.

Type species : *R. Czernyi*, Bezzi, by original designation.

Geographical distribution.

SUBGENUS CAMELOPIS

1. *C. erminea*, Mik, Wien. Ent. Zeit. Vol. 6, p. 161 [1887] (*Philolutra*). C. Europe.
2. *C. phantasma*, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 350 [1880] (*Clinocera*); ibidem. Vol. 31, p. 327, pl. 16, f. 12, 13 [1881] (*Philolutra*); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 107 [1893] (*Philolutra*); Engel, Deutsche Ent. Zeitschr. 1918, p. 233, f. 54a, 54b, 55 (1918). C. Europe.
3. *C. quercifolia*, Engel, Deutsche Ent. Zeitschr. 1918, p. 235, f. 56 (1918). C. Europe.

SUBGENUS CHAMÆDIPSIA

1. *Ch. alpina*, Engel, Deutsche Ent. Zeitschr. 1918, p. 220, f. 44-46 (1918). Tirol.
2. *Ch. Beckeri*, Mik, Wien. Ent. Zeit. Vol. 8, p. 71 (1889); Becker, ibidem, Vol. 8, p. 83, pl. 1, f. 7, 8 (1889); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 107 (1893); ibidem, Vol. 34, p. 209 (1898); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 149 (1899); Engel, Deutsche Ent. Zeitschr. 1918, p. 215, f. 36, 37 (1918). C. & S. Europe.
jugorum, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 105 (1893); Pokorny, Verh. Zool.-bot. Ges. Wien, Vol. 43, p. 2 [1893] (*Phæobalia*); Mik, Wien. Ent. Zeit. Vol. 13, p. 49 (1894); Strobl, Mitteil. Naturw. Nat. Ver. Steiermark, Graz, Vol. 34, p. 209 (1898).
3. *Ch. bicuspidata*, Engel, ibidem, 1918, p. 217, f. 38, 39 (1918). C. Europe.
var. ornata, Engel, ibidem, 1918, p. 219, f. 40-43 (1918). Hungary.
4. *Ch. clenistes*, nov. sp. New Hampshire.
5. *Ch. comata*, nov. sp. Washington.
6. *Ch. gubernans*, nov. sp. British Columbia.
7. *Ch. humifera*, nov. sp. E. United States.

8. *Ch. hastata*, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 349 [1880] Austria.
(*Clinocera*); ibidem, Vol. 31, p. 326 (1881); Engel, Deutsche Ent.
Zeitschr. 1918, p. 214, f. 35 (1918).
9. *Ch. lepida*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 241 (1902); Idaho.
Engel, Deutsche Ent. Zeitschr. 1918, p. 33 [1918] (*Clinocera*).
10. *Ch. longicornis*, Mik, Wien. Ent. Zeit. Vol. 6, p. 162 (1887); Strobl, C. Europe.
Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 107 (1893); Engel,
Deutsche Ent. Zeitschr. 1918, p. 211, f. 33 (1918).
11. *Ch. lota*, Haliday, Walker, Ins. Brit. Vol. 1, p. 107, pl. 3, f. 7 [1851] C. Europe, Asia Minor.
(*lotæ*); ibidem, Vol. 3, p. 11 [1856] (*Wiedemannia*); Loew, Wien.
Ent. Monatschr. Vol. 2, p. 244 [1858] (*Clinocera*); Mik, Verh. Zool.-
bot. Ges. Wien, Vol. 31, p. 327, pl. 16, f. 8, 10 [1881] (*Philolutra*);
Wien. Ent. Zeitschr. Vol. 8, p. 72, note 2 (1888); Engel, Deutsche
Ent. Zeitschr. 1918, p. 209, f. 32 (1918).
pusilla, Loew, Wien. Ent. Monatschr. Vol. 2, p. 243 [1858] (*Clinocera*).
12. *Ch. Mikiana*, Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 149 (1899); Strobl, C. & S. Europe.
Tief Nachl. p. 33 (1900); Engel, Deutsche Ent. Zeitschr. 1918,
p. 213, f. 34 (1918).
13. *Ch. minor*, nov. sp. New York.

SUBGENUS CLINOCERELLA

1. *C. Oldenbergi*, Engel, Deutsche Ent. Zeitschr. 1918, p. 241, f. 60 (1918). C. Europe.
Tiefii, Mik, in litt. Engel, ibidem, 1918, p. 241 [1918] (*Orthorhynchium*).
2. *C. sorex*, Engel, ibidem, 1918, p. 239, f. 58, 59 (1918). C. Europe.
brevisana, Mik, in litt. Engel, ibidem, 1918, p. 239 [1918] (*Orthorhynchium*).

SUBGENUS EUCELIDIA

1. *E. Escheri*, Zetterstedt, Fauna Ins. Lappon. p. 558 [1838] (*Brachystoma*); C. & N. Europe.
Dipt. Scand. Vol. 1, p. 362 [1842] (*Brachystoma*); Bonsdorff, Finl.
tvåv. Ins. Dipt. Vol. 1, p. 163 [1861] (*Brachystoma*); Mik, Verh.
Zool.-bot. Ges. Wien, Vol. 31, p. 327 (1881); Wahlgren, Ent.
Tidskr. Vol. 31, p. 83 (1910); Engel, Deutsche Ent. Zeitschr. 1918,
p. 201, f. 28, 30e (1918).
longipennis, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 349 [1880] (*Clinocera*); Mik, ibidem, Vol. 31, p. 326 [1881] (*Roederia*).
stigmatalis, Zetterstedt, undescribed (*Brachystoma*).
2. *E. pirata*, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 350 [1880] (*Clinocera*); C. Europe.
ibidem, Vol. 31, p. 327 (1881); Engel, Deutsche Ent.
Zeitschr. 1918, p. 205, f. 31 (1918).
3. *E. Zetterstedti*, Fallen, Dipt. Suec. Suppl. 1, p. 7 [1826] (*Empis*); Zetter- C. & S. Europe.
stedt, Dipt. Scand. Vol. 1, p. 362 [1842] (*Brachystoma*); Loew, Wien.
Ent. Monatschr. Vol. 2, p. 249 [1858] (*Clinocera*); Schiner, Fauna
Dipt. Austr. Vol. 1, p. 84 [1862] (*Clinocera*); Mik, Verh. Zool.-bot.
Ges. Wien, Vol. 31, p. 327, pl. 16, f. 11 (1881); Strobl, Jarb. Mus.
Kärnten, Klagenfurt, Vol. 47, p. 203 (1901); Lundbeck, Dipt. Dan.
Vol. 3, p. 222, f. 92 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 83
(1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 63
(1913); Engel, Deutsche Ent. Zeitschr. 1918, p. 203, f. 29, 30
(1918).

SUBGENUS PHILOLUTRA

1. *Ph. aquilex*, Loew, Besch. Eur. Dipt. Vol. 1, p. 272 [1869] (*Clinocera*); C. Europe.
Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 327, pl. 16, f. 16

- (1881); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 107 (1893); Engel, Deutsche Ent. Zeitschr. 1918, p. 229, f. 51 (1918).
2. *Ph. Bohemani*, Zetterstedt, Fauna Ins. Lappon. p. 558 [1838] (*Brachystoma*); Europe.
Dipt. Scand. Vol. 1, p. 361 [1842] (*Brachystoma*); Vol. 8, p. 3019 (1849); Loew, Wien. Ent. Monatschr. Vol. 2, p. 252 [1858] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 327 (1881); in Beck, Fauna Hernstein, Vol. 2, p. 2 (1885); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 107 (1893); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 151 (1899); Wahlgren, Ent. Tidskr. Vol. 31, p. 83 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 63 (1913); Engel, Deutsche Ent. Zeitschr. 1918, p. 225, f. 48, 49 (1918).
3. *Ph. fallaciosa*, Loew, Berl. Ent. Zeitschr. Vol. 17, p. 44 [1873] (*Clinocera*); C. Europe.
Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 327, pl. 16, f. 14, 18 (1881); Mik, in Beck, Fauna Hernstein, Vol. 2, p. 2 (1885); Engel, Deutsche Ent. Zeitschr. 1918, p. 227, f. 50 (1918).
impudica, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 351 [1880] (*Clinocera*)
ibidem, Vol. 31, p. 327 (1881).
4. *Ph. hygrobica*, Loew, Wien. Ent. Monatschr. Vol. 2, p. 248 [1858] (*Clinocera*); C. & S. Europe.
Loew, Besch. Eur. Dipt. Vol. 1, p. 273, note [1869] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 327 (1881); Mik, in Beck, Fauna Hernstein, Vol. 2, p. 2 (1885); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 107 (1893); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 151 (1899); Engel, Deutsche Ent. Zeitschr. 1918, p. 223, f. 47 (1918).
5. *Ph. laguna*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 4, p. 43, pl. 1, f. 8, 9 (1908); Engel, Deutsche Ent. Zeitschr. 1918, p. 231, f. 53 (1918). Canary Islands.
6. *Ph. simplex*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 207 : Cent. 2, No. 49 (1862); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 240 (1902); United States.
Engel, Deutsche Ent. Zeitschr. 1918, p. 36 [1918] (*Clinocera*).
7. *Ph. Wachtlii*, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 351 [1880] C. Europe.
(*Clinocera*); ibidem, Vol. 31, p. 327 (1881); Engel, Deutsche Ent. Zeitschr. 1918, p. 230, f. 52 (1918).

SUBGENUS PSEUDOWIEDEMANNIA

1. *P. armata*, Engel, Deutsche Ent. Zeitschr. 1918, p. 244, f. 61 (1918). C. Europe.
2. *P. lamellata*, Loew, Besch. Eur. Dipt. Vol. 1, p. 267 [1869] (*Clinocera*); C. Europe.
Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 327 [1881] (*Wiedemannia*); Becher, Denks. Akad. Wien, Vol. 45, p. 147, pl. 3, f. 14 [1882] (*Clinocera*); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 202 [1904] (*Wiedemannia*); Kertész, Rovart. Lappon. Vol. 18, p. 67 [1911] (*Wiedemannia*); Engel, Deutsche Ent. Zeitschr. 1918, p. 246, f. 63 (1918).
3. *P. microstigma*, Bezzi, Ann. Mus. Nat. Hungar. 1904, p. 201 [1904] Bosnia.
(*Wiedemannia*); Engel, Deutsche Ent. Zeitschr. 1918, p. 248, f. 64 (1918).

SUBGENUS ROEDERELLA

1. *R. Czernyi*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 362, f. 1 [1905] (*Roederia*); Italy.
Engel, Deutsche Ent. Zeitschr. 1918, p. 197, f. 26, 27 (1918).
longipennis, Bezzi (not Mik), Bull. Soc. Ent. Ital. Vol. 30, p. 150 [1899] (*Roederia*).
var. *rufipes*, Oldenberg, Archiv. Naturges. Vol. 80 (9), p. 92 [1915] (*Roederia*). Apennines.

SUBGENUS WIEDEMANNIA

1. *W. bilobata*, Oldenberg, Ann. Mus. Hungar. Vol. 8, p. 349, f. 2, 3 (1910); C. Europe.
Engel, Deutsche Ent. Zeitschr. 1918, p. 257, f. 69 (1918).
2. *W. bistigma*, Curtis, Brit. Ent. Vol. 8, p. 513 [1834] (*Heleodromia*); Walker, C. & S. Europe.
Ins. Brit. Vol. 1, p. 107 (1851); Loew, Wien. Ent. Monatschr. Vol. 2, p. 243 [1858] (*Clinocera*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 84 [1862] (*Clinocera*); Nowicki, Verh. Nat. Ver. Brünn, Vol. 6, pl. 2, f. 7 [1868] (*Clinocera*); Loew, Besch. Eur. Dipt. Vol. 1, p. 269, note [1869] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 327 (1881); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 202 (1904); Bezzi, ibidem, Vol. 3, p. 364 (1905); Lundbeck, Dipt. Dan. Vol. 3, p. 223, f. 93 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 83 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 63 (1913); Engel, Deutsche Ent. Zeitschr. 1918, p. 251, f. 66 (1918).
borealis, Zetterstedt, Fauna Ins. Lappon. p. 207 (1832) no description; ibidem, p. 559 (1838); Dipt. Scand. Vol. 1, p. 365 (1842); ibidem, Vol. 8, p. 3021 (1849); ibidem, Vol. 11, p. 4270 (1852); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 163 (1861).
juvenilis, Zetterstedt, Dipt. Scand. Vol. 1, p. 366 (1842); ibidem, Vol. 8, p. 3022 (1849).
3. *W. Braueri*, Mik, Verh. Zool.-bot. Ges. Wien, Vol. 30, p. 352 [1880] Austria.
(*Clinocera*); Mik, ibidem, Vol. 31, p. 327 (1881); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 202 (1904); Bezzi, ibidem, Vol. 3, p. 363 (1905); Engel, Deutsche Ent. Zeitschr. 1918, p. 261, f. 71 (1918).
4. *W. oxystoma*, Bezzi, Ann. Mus. Hungar. 1905, p. 364, f. 2 (1905); Engel, Italy.
Deutsche Ent. Zeitschr. 1918, p. 255, f. 68 (1918).
5. *W. rhynchops*, Nowicki, Verh. Nat. Ver. Brünn, Vol. 6, p. 89, pl. 2, f. 6 C. Europe.
[1868] (*Clinocera*); Loew, Besch. Eur. Dipt. Vol. 1, p. 268 [1869] (*Clinocera*); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, p. 327, pl. 16, f. 15 (1881); Mik, Beck. Fauna Hernstein, Vol. 2, p. 2 (1885); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 202 (1904); Bezzi, ibidem, Vol. 3, p. 364 (1905); Lundbeck, Dipt. Dan. Vol. 3, p. 224, f. 94 (1910); Engel, Deutsche Ent. Zeitschr. 1918, p. 258, f. 70 (1918).
6. *W. styliifera*, Mik, Wien. Ent. Zeit. Vol. 8, p. 150 (1889); Bezzi, Bull. C. & S. Europe.
Soc. Ent. Ital. Vol. 30, p. 151 (1899); Ann. Mus. Hungar. Vol. 2, p. 202 (1904); ibidem, Vol. 3, p. 364 (1905); Engel, Deutsche Ent. Zeitschr. 1918, p. 253, f. 67 (1918).
7. *W. tricuspidata*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 365, f. 3 (1905); Hungary.
Engel, Deutsche Ent. Zeitschr. 1918, p. 262, f. 72 (1918).

14. GENUS DOLICHOCEPHALA, MACQUART

- Dolichocephala**, Macquart, Mém. Soc. Sc. Lille, 1823, p. 147 (1823); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 248, 262 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 224 (1908); Kertész, Cat. Dipt. Vol. 6, p. 127 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 535 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 238 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 44, 84 (1910); Engel, Deutsche Ent. Zeitschr. 1918, p. 3 (1918); Brunetti, Fauna Brit. India, Dipt. Vol. 1, p. 370 (1920).
- Andoptera**, Macquart, Dipt. N. France, Vol. 3, p. 105 (1827); Hist. Nat. Dipt. Vol. 1, p. 358 (1834); Westwood, Gen. Syn. p. 132 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 323 (1842); Boitard, Man. Ent. Vol. 3, p. 325 (1843); Walker, Ins. Brit. Vol. 1, p. 103 (1851); Rondani, Dipt. Ital. Vol. 1, p. 149 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 561 (1857); Schiner, Fauna Dipt.

Austr. Vol. 1, p. 85 (1862); Lioy, Atti. Instit. Ven. 1864, p. 722 (1864); Röder, Wien. Ent. Zeitschr. Vol. 6, p. 169 (1887); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389 (1895); Williston, Man. N. Amer. Dipt. p. 75 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 238 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 246 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 509 (1910).

Leptosceles, Haliday, Ent. Mag. London, Vol. 1, p. 160 (1838); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 252 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 560 (1910).

Characters. — Small, slender, delicate, dark colored, rather shining species with brown wings marked with hyaline spots, with strong bristles and with simple legs. Head produced downward, the neck attachment located high up on the occiput so that the head is borne projecting obliquely forward, the mouth-opening at the end of the head and not on the lower side as in *Hemerodromia*. Occiput with radiating bristles, those above long, one pair of proclinate fronto-orbitals, ocellar bristles strong, curving upward and spaced apart as much as the posterior ocelli, no lesser or postvertical bristles; front very short and broad, the ocelli on a large prominent tubercle, face tapering beneath, cheeks narrow; eyes large and ovate, the emargination at the antennæ small, facets uniform, densely short-hairy; antennæ not quite touching, short and three-jointed, the second and third joints globular, the thickened arista not hairy, bending downward, two-jointed but the basal segment minute; proboscis very short, thick, palpi minute, curving forward. Thorax elongate, the prothorax visible from above, the prosternum rather long but not flared out around the base of the coxæ and not sulcate medially; bristles long, comprising one humeral, one posthumeral, no notopleural, one supraalar, one small postalar, five dorsocentral and two scutellar; metapleuræ with a group of upturned hairs, sparse in *irrorata*. Abdomen depressed, shining, more or less hairy, pygidium rather small but robust, turned back over the small last two segments, comprising a ventral hood-shaped piece, two lateral valves and two chitinized superior forcipate valves, the penis with thickened base and circularly curved end; no ovipositor, the end of the female abdomen blunt. Legs unarmed, the front coxæ half as long as their femora, no bristles or tibial spurs but the front and hind tibiæ tipped with a pecten of close fitting setulæ, pulvilli small, empodium linear. Wings cuneate, no anal angle, costa encompassing the entire margin, a strong basal costal bristle, costal setulæ minute, fringe of the hind margin longer than the anterior crossvein; auxiliary vein complete, ending by a gentle curve in the costa, first vein ending before the middle of the wing, no stigma, longitudinal veins more or less undulating, three submarginal cells, the fork of the third vein angulate and there connected with the second vein by an adventitious crossvein, second basal cell small, the fourth vein originating near the middle of the anal cell, discal cell long, complete, emitting three separate posterior veins, anal cell a little shorter than the second basal, apically round, no anal vein.

Type species: *D. irrorata*, Fallen (Pl. 3, Fig. 24). Macquart gave a very clear description of *Dolichocephala* with its single species, *maculata*, which in the same paper he determined as a synonym of *irrorata*. Later he redescribed the genus as *Ardoptera*. The species of this genus are delicate little flies that frequent damp shady woods near water. They are not common, never occurring in swarms.

Geographical distribution.

- | | |
|---|-------------|
| 1. <i>D. argus</i> , nov. sp. (1). | Washington. |
| 2. <i>D. combinata</i> , Becker, Ann. Soc. Ent. France, Vol. 83, p. 122 (1914). | E. Africa. |

(1) *Dolichocephala argus*, nov. sp. — Male and female. Length 2 mm. Shining, bronzed black, wings with numerous round white spots, discal cell long, halteres black. Vertex lightly dusted with brown pollen and marked with a cinereous Y-shaped spot which starts at the neck and includes the ocellar prominence; fronto-orbital bristles proclinate, the

3. *D. guttata*, Haliday, Ent. Mag. London, Vol. 1, p. 161 [1833] (*Leptosceles*); Europe.
Walker, List. Dipt. Brit. Mus. Vol. 3, p. 504 [1849] (*Ardoptera*); Ins.
Brit. Vol. 1, p. 104 [1851] (*Ardoptera*); Loew, Wien. Ent. Monatschr.
Vol. 2, p. 8 [1858] (*Ardoptera*); Strobl, Mitteil. Nat. Ver. Steiermark.
Graz, Vol. 29, p. 99 [1893] (*Ardoptera*); Wien. Ent. Zeit. Vol. 18,
p. 77 [1899] (*Ardoptera*); Lundbeck, Dipt. Dan. Vol. 3, p. 241 (1910).
oblongo-guttata, Dale, Hist. of Glenville's Wootton, p. 264 [1878] (*Ardoptera*).
var. *exoleta*, Haliday, Ent. Mag. London, Vol. 1, p. 161 [1833] (*Leptosceles*). England.
var. *nigrohalterata*, Strobl, Glasnik Zem. Mus. Bosn. Herceg. Sarajevo, Vol. 10, C. Europe.
p. 399 [1898] (*Ardoptera*); Wiss. Mitteil. Bosn. Herceg. Sarajevo, Vol. 7,
p. 561 [1900] (*Ardoptera*).
4. *D. irrorata*, Fallen, Empid. Suec. p. 13 [1815] (*Tachydromia*); Meigen, Europe, North America.
Syst. Besch. Vol. 3, p. 66, pl. 23, f. 11 [1822] (*Hemerodromia*);
Macquart, Dipt. N. France, Vol. 3, p. 106, pl. 3, f. 2 [1827] (*Ardop-*
tera); Haliday, Ent. Mag. London, Vol. 1, p. 161 [1833] (*Leptosceles*);
Macquart, Hist. Nat. Dipt. Vol. 1, p. 358, pl. 8, f. 3 [1834] (*Ardop-*
tera); Zetterstedt, Fauna Ins. Lappon. p. 544 [1838] (*Hemerodromia*);
Blanchard, Hist. Nat. Ins. Vol. 3, p. 583 [1840] (*Ardoptera*); Loew,
Bemerk. Posen. Gegend Art. Zweifl. Gatt. 1840, p. 22, pl. 1, f. 31;
Isis, Vol. 7, p. 551, f. 31 (1840); Zetterstedt, Dipt. Scand. Vol. 1,
p. 324, 1 [1842] (*Ardoptera*); Boitard, Man. Ent. Vol. 3, p. 325 [1843]
(*Ardoptera*); Walker, List Dipt. Brit. Mus. Vol. 3, p. 504 [1849]
(*Ardoptera*); Zetterstedt, Dipt. Scand. Vol. 8, p. 3012 [1849] (*Ardop-*
tera); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 59 [1851]
(*Ardoptera*); Loew, Wien. Ent. Monatschr. Vol. 2 [1858] (*Ardoptera*);
Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 155 [1861] (*Ardoptera*);
Schiner, Fauna Dipt. Austr. Vol. 1, p. 85 [1862] (*Ardoptera*); Strobl,
Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 98 [1892] (*Ardoptera*);
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 239 [1902] (*Ardoptera*);
Czizek, Jahrb. Mæhr. Landesmus. Klagenfurt, Vol. 7, p. 166 [1907]
(*Ardoptera*); Lundbeck, Dipt. Dan. Vol. 3, p. 239, f. 104, 105 (1910);
Wahlgren, Ent. Tidskr. Vol. 31, p. 85 (1910); Frey, Acta Soc. Sc.
Fenn. Helsingfors, Vol. 37 (3), p. 65 (1913). — **Pl. 3, Fig 24.**
anomala, Scholz, Zeitschr. Ent. Breslau, Vol. 5, p. 59 [1851] (*Ardoptera*).
maculata, Macquart, Mém. Soc. Sc. Lille, 1823, p. 147, 165 (1823).
5. *D. ocellata*, Costa, Ann. Sc. Napoli, Vol. 1, p. 76 [1854] (*Ardoptera*); Wien. C. & S. Europe.
Ent. Monatschr. Vol. 3, p. 64 [1859] (*Ardoptera*); Verrall, Ent. Mag.
London, Vol. 48, p. 26 [1912] (*Ardoptera*).
novemguttata, Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 98 [1892]
(*Ardoptera*); Wien. Ent. Zeit. Vol. 18, p. 77 [1899] (*Ardoptera*); Frey,
Acta Soc. Sc. Fenn. Helsingfors, Vol. 31, p. 6 (1908); *ibidem*, Vol. 37 (3),
p. 65 (1913).
oculata, Loew, Wien. Ent. Monatschr. Vol. 2, p. 7 [1858] (*Ardoptera*)
var. *albohalterata*, Strobl, Glasnik Zem. Mus. Bosn. Herceg. Sarajevo, Vol. 10, C. Europe
p. 399 [1898] (*Ardoptera*); Wiss. Mitteil. Bosn. Herceg. Sarajevo, Vol. 7,
p. 561 [1900] (*Ardoptera*).
6. *D. septemnotata*, Brunetti, Rec. Indian Mus. Vol. 9, p. 35 (1913); Fauna W. Himalayas.
Brit. India Dipt. Vol. 1, p. 371, pl. 4, f. 19-21 (1920).
7. *D. sparsa*, Becker, Ann. Soc. Ent. France, Vol. 83, p. 122 (1914). E. Africa.

occipitals erect; face cinereous, cheeks small, mouth-parts scarcely protruding. Dorsum very lightly dusted, a faint gray median stripe visible on the front portion, pleuræ largely shining but with a more or less evident cinereous horizontal stripe; metapleural hairs abundant; abdomen shining. Legs including the coxæ pale fuscous, the last tarsal joints darker, the coxæ apically with longer hairs. Wings infumated, with round white spots as follows: one in third submarginal, the fourth and the fifth posterior cells, two in the first submarginal, the discal and the second posterior cells, three in the second submarginal cell, five in the marginal and first posterior cells, the spots of the first submarginal cell largest, second vein sinuous, submarginal cells of equal extent on the costa, last two sections of the fourth vein equal, of the fifth vein, 3 : 1, no anal vein, the anal cell not extending as far as the second basal, marginal cilia twice as long as the anterior crossvein.

Seven specimens; Bellingham and Mount Constitution, Washington, May to August.

15. GENUS LAMPOSOMA, BECKER

Lamposoma, Becker, Berl. Ent. Zeitschr. Vol. 33, p. 338 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 251, 263 (1903); Kertész, Cat. Dipt. Vol. 6, p. 120 (1909); Engel, Deutsche Ent. Zeitschr. 1918, p. 3 (1918).

Characters. — A minute insect, measuring one millimeter, shining black in color and resembling *Clinocera* in form and venation, but differing in lacking a pollinose coating and in having broader wings. Head rounded, eyes large, finely pubescent, cheeks narrow, divided, face narrowed beneath, white pollinose and bare, the occiput shining black; third joint of the antennæ oval, with a long apical arista; proboscis very short. Thorax polished, a faint pollinose median vitta present, five strong dorsocentral bristles, two scutellars, no acrostichals; pleuræ and abdomen shining, bare except for a few hairs on the terminal segments; epipygium small, reflexed, with the lower piece hood-shaped. Legs slender, without bristles, the femora somewhat pale-ciliate beneath, the tibiæ slightly enlarged apically, no pulvilli, empodium very small. Wings clear hyaline, broad and bluntly rounded, the veins slender, no stigma, costal bristle large, first vein ending before the middle of the wing, fork of the third vein greatly bowed, the second submarginal cell broad, discal cell rather blunt, emitting three posterior veins, anal cell extending as far as the second basal, no trace of the anal vein.

But a single species is known, *L. cavaticum*, which was found in a cave in Dalmatia.

Geographical distribution.

1. *L. cavaticum*, Becker, Berl. Ent. Zeitschr. Vol. 33, p. 339, f. 3 (1889); S. Europe. Bezzi, Arch. Zool. Exper. Paris (5), Vol. 8, p. 50 (1911). — (Pl. 7, Fig. 64).

SUBFAMILY HEMERODROMIINÆ

Characters. — Very slender delicate species with raptorial front legs; usually of light coloration and with pale yellow appendages. Head globular, mouth-opening placed far back, proboscis inflexed, always shorter than the head and stout at the base, palpi small; eyes large, nearly or quite contiguous on the face in both sexes, but separated above the antennæ, broadly emarginate on the lower occiput, lower facets largest when the eyes encroach on the face; antennæ short, three-jointed, with a short style (*Hemerodromia*) or hairy two-jointed arista (*Chelipoda*), inserted below the middle of the head. Thorax narrow and diagonally elongate, scarcely arched, mesosternum much longer than the prosternum, front legs greatly distant from the posterior pairs and located close to the head, mesonotum nearly bare (*Hemerodromia*) or with bristles (*Chelipoda*), metapleuræ hairy in the latter group, otherwise bare, prescutellar depression less evident than in the *Clinoceratina*. Abdomen slender, sometimes the last segments of the female drawn out to form an ovipositor; genitalia of the male either a terminal pygidium or reflexed epipygium. Legs long, the posterior pairs very slender, the front pair strongly raptorial, front coxæ at least twice as long as the others, front femora thickened and armed below. Wings cuneiform, the anal angle not developed, costa continuing around the wing, except in *Hemerodromia*, s. str., where it is attenuated beyond the fourth vein, third vein forked (*Hemerodromia*) or not (*Chelipoda*), discal and anal cells present or absent, petiole of the second and third veins short, arising nearer the anterior than the humeral crossvein, anal crossvein if present perpendicular to the axis of the wing, stigma absent or present. Calypteres with straight edge and small fringe, and closely united to the base of the wing.

SYNOPSIS OF THE GENERA OF THE HEMERODROMIINÆ

1. *Style shorter than the third antennal joint; proboscis usually inflexed and pointed; no discal macrochætæ, metapleuræ bare, mesosternum but little concave; pygidium terminal and more or less erect; ovipositor chitinized and sometimes produced; third vein forked, anal cell, when present, broader towards apex, the crossvein straight, basal cells more than one-third the length of the wing, costa with very short hairs* *HEMERODROMIA, s. latiss.* 2
- Arista more than twice as long as the third antennal joint; proboscis nearly vertical; some discal macrochætæ present, metapleuræ with some setulæ, mesosternum more or less concave; pygidium reflexed over the abdomen; ovipositor not produced and chitinized; no spur at the end of the front tibiæ; third vein not forked, anal cell with parallel sides, except in Cephalodromia, and apically rounded, basal cells small, less than one-third the length of the wing, the anal and second basal cells subequal in extent, costa hairy and usually with a basal bristle.* *CHELIPODA, s. latiss.* 9.
2. *Eyes more or less separated on face; anal cell, when present, much shorter than second basal, the anal crossvein oblique; proboscis inflexed; no prothoracic bristle* 3.
- Eyes large, contiguous beneath antennæ; anal cell subequal to second basal, anal crossvein perpendicular; prothoracic and supra-alar bristles distinct; discal cell emitting three veins* *Genus DRYMODROMIA, Becker.*
3. *Humeral crossvein wanting, auxiliary vein fusing with the costa close to the base of the wing, first vein terminating before the middle of the wing, pedicel of the second and third veins atrophied, anal cell imperfect or wanting; thorax quadrangular, without a depressed prescutellar space; front short, face very narrow, the eyes subcontiguous* 4.
- Humeral crossvein present, auxiliary vein well separated from the costa and parallel with it, first vein terminating at or beyond the middle of the wing, pedicel of the second and third veins distinct though short, anal cell complete, the anal vein separated from the thickened hind margin; thorax with a distinct depressed prescutellar space and with evident humeri; eyes plainly separated on the face; style very short; scutellum smaller than the metanotum* *Genus CHELIFERA, Macquart.* 5.
4. *Discal cell open outwardly, anal cell wanting, second posterior cell petiolate; auxiliary vein a little bent, fused along its middle course and slightly separating from the costa at its tip, pedicel of the second and third veins entirely atrophied; hind margin of the wing scarcely thickened, the costa abruptly thinner beyond the fourth vein; anal vein running into the hind margin at its very root; scutellum as large as and usually larger than the metanotum; humeri not constricted; ovipositor usually short and conical;*

- style of antennæ at least half as long as the third joint; lower facets of the eyes large. (Pl. 3, Fig. 26) Genus *HEMERODROMIA*, Meigen.
- Discal cell closed outwardly, anal crossvein present, second posterior cell sessile; auxiliary vein straight, completely fusing with the costa, base of the pedicel of the second and third veins distinct; hind margin of the wings thickened, the anal vein separate but weak; humeri strongly constricted; ovipositor long, ensiform; third antennal joint without evident style; lower facets small; front coxæ of male as thick as their femora. (Pl. 3, Fig. 27). Genus *COLABRIS*, nov. gen.
5. Discal cell complete; front legs strongly raptorial; style of the antennæ very short. 6.
- Discal cell fused with either the second basal or the third posterior cell; thorax not narrowed in front 7
6. Second posterior cell petiolate; thorax narrowing in front; no ovipositor. (Pl. 3, Fig. 28). Subgenus *CHELIFERA*, Macquart.
- Second posterior cell sessile or nearly so; thorax broad in front; ovipositor rather long and thick Subgenus *CLADODROMIA*, Bezzi.
7. Second posterior cell petiolate; front legs strongly raptorial, the front femora spinose 8.
- Second posterior cell sessile, first vein ending at the middle of the wing, second vein very short, humeral crossvein vestigial; front femora but little thickened and not strongly spinose; ovipositor long, ensiform; face very narrow; thorax shining black and not pollinose; palpi spatulate and silky; style of the antennæ microscopic. Subgenus *NEOPLASTA*, Coquillett.
8. Discal cell fused with the third posterior cell; style of the antennæ microscopic; no ovipositor, the abdomen of the female with a blunt termination Subgenus *THANATEGIA*, nov. subgen.
- Discal cell fused with the second basal cell; style one-third as long as the third antennal joint; ovipositor ensiform Subgenus *METACHELA*, Coquillett.
9. Anal vein separated from the hind margin of the wing, the anal cell not broader than the second basal cell; posthumeral and vertical macrochaeta present; upper occiput short and declivous; wings rarely pictured. 10.
- Anal cell broad, reaching the hind margin with which the anal vein is fused; vertical and all thoracic bristles except the supraalar absent; occiput horizontal, strongly elevated above; discal cell open apically, the fourth vein furcate Genus *CEPHALODROMIA*, Becker.
10. Arista rather thick, but not plumose; front coxæ not tuberculate and armed only with a basal spine, middle legs not armed : . . . Genus *CHELIPODA*, Macquart. 11.
- Antennæ elongate, the arista bearing a plume of hairs beneath; front coxæ, middle tibiæ and middle metatarsi ♂ armed with tubercles or spines; discal cell complete. Genus *PTILOPHYLLDROMIA*, Bezzi.
11. Discal cell complete, emitting three veins apically; anal cell subequal to the second basal cell. (Pl. 3, Fig. 25) Subgenus *CHELIPODA*, Macquart.
- Discal cell open, the posterior crossvein absent and the fourth vein acutely forked; anal cell a little shorter than the second basal cell. Subgenus *PHYLLDROMIA*, Zetterstedt.

HEMERODROMIA, MEIGEN, SENSU LATIORE

Hemerodromia, Meigen, Syst. Besch. Vol. 3, p. 61 (1822); Macquart, Dipt. N. France, Vol. 3, p. 101 (1827); Hist. Nat. Dipt. Vol. 1, p. 347 (1834); Zetterstedt, Fauna Ins. Lappon. p. 542 (1838); Dipt. Scand. Vol. 1, p. 260 (1842); Boitard, Man. Ent. Vol. 3, p. 322 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 142 (1851); Rondani, Dipt. Ital. Vol. 1, p. 148 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 562 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 82 (1862); Loew, Wien. Ent. Monatschr. Vol. 8, p. 237-255 (1864); Lioy, Atti Instit. Ven. 1864, p. 719 (1864); Röder, Wien. Ent. Zeit. Vol. 6, p. 169 (1887); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 123 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389, 391 (1895); Williston, Trans. Ent. Soc. London, Vol. 3, p. 440 (1896); Man. N. Amer. Dipt. p. 75 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 233 (1902); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 452 (1905); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 123 (1889); Kertész, Cat. Dipt. Vol. 6, p. 112 (1909); Lundbeck, Dipt. Dan. Vol. 3, p. 228 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 44, 83 (1910).

Characters. — Slender, elongate, frail, nearly bare, little flies with elongate raptorial front legs and forked third vein, usually of reddish coloration, but sometimes the body is blackened. Head produced obliquely downward, somewhat flattened, nearly as broad as the thorax, ocelli placed rather far forward, eyes obliquely oval, bare, with a rather deep notch at the antennæ, facets more or less enlarged below, lower orbits usually with a conspicuous white pruinose spot, which is broader below, vertex large and broad, front varying from short to long, but broader than the short face, which is sometimes quite narrowed by the subcontiguous eyes, cheeks linear, oral opening and epistome with dense silky pubescence, vertex rarely with setulæ and with no or one bristle. Antennæ inserted low on the head, contiguous, three-jointed, the basal joints not setose, the third joint compressed ovate, with apical unjointed style which varies from one-twentieth to two-thirds the length of the third joint and is either bare or hairy. Proboscis about as long as the head, slender, incurved, the densely hairy, small, slender, one-jointed palpi more or less retracted, vertical or directed somewhat backward. Thorax conspicuously longer than wide, quadrate or tapering forward when viewed from above when the prothorax and metathorax are quite visible, humeral grooves more or less distinct, pollinose but not pubescent, with very sparse biseriate acrostichal and uniseriate dorsocentral setulæ, no prescutellar bristles, no humeral, one supraalar, one or no postalar bristles, several notopleural setulæ, sometimes two fine scutellar bristles, sometimes no, two or four scutellar hairs, setulæ in front of the scutellum proclinate; mesopleuræ very long between the front and middle coxal attachments, metapleuræ bare. Abdomen slender and cylindrical, comprising eight segments, the first very small and in the male the last also, ovipositor more or less conical, variable in length, pygidium globose or with a hood-shaped lower piece surmounted by a pair each of broad, usually forcipate lateral and dorsal valves, penis clavate or capitate, sometimes hidden. Legs slender, the posterior pairs simple but the front pair remarkably modified, front coxæ very long, usually extremely slender, the prosternum flared at the coxal cavities, front femora and front tibiæ raptorial, the former swollen and with biseriate flexor setulæ and usually with prominent lateral stiff setæ, the front tibiæ shorter than the femora, produced within as a sharp spur and with flexor setulæ which engage between the femoral setulæ when the leg is folded, otherwise no bristles or apical spines, tarsi simple and slender, the posterior metatarsi long, pulvilli minute. Wings slender, oval, the anal angle wanting, costa continuing around the entire wing, but in *Hemerodromia* s. str. very much attenuated beyond the fourth vein, no costal bristle or setulæ, the costal hairs short, but the hairs of the hind margin rather long, especially toward the base, auxiliary vein present but its

course variable, third vein forked, the upper branch rather erect, stigma present or absent, pedicel of the second and third veins very short; otherwise the neuration varies greatly as outlined below.

Ethology : These odd little flies with their semi-translucent legs and bodies, are the most delicate of the Empididæ. They occur, never in large numbers, in shady sheltered spots in the woods, usually near water, running over herbage and low shrubbery. Sometimes the species occur in houses, where, as Mrs. Slosson has said: «as they run upon a window-pane with the light behind them they seem mere shadows, little ghosts, frail, elf-like things». Some species are nocturnal, and are attracted to lights.

Brocher, who has recently studied the life-history of *C. precatória*, found the larva in the mud of streams. The larva is slender, but tapers in front, its posterior end is furnished with five or six diverging hairs, and ventrally it has seven pairs of retractile propodia. The pupa has paired tracheal filaments, each two-thirds as long as the body, attached at the spiracles, and including one prothoracic and seven abdominal pairs; it has no dorsal spines but merely girdles of setulæ on the abdomen. The pupal period lasted thirteen days.

Taxonomy : The old genus *Hemerodromia* has had a host of synonyms. While many of the names were bestowed as subgenera on certain permutations of three neurational characters, — namely, the presence or absence of the discal cell, the presence or absence of the anal cell and the shape of the second posterior cell, whether sessile or petiolate, — others are pure homonyms. The usual custom has been to consider these groups as subgenera, since they were based on but slight variations of the venation. These so-called subgenera have been characterized as follows :

	Discal cell	Anal cell	Second posterior cell
<i>Hemerodromia</i> , Meigen, s. str.	imperfect	absent	petiolate
<i>Metachela</i> , Coquillett	imperfect	present	petiolate
<i>Neoplasta</i> , Coquillett	imperfect	present	sessile
<i>Chelifera</i> , Macquart	present	present	petiolate
<i>Cladodromia</i> , Bezzi	present	present	sessile

If such variations in wing venation were not correlated with other characters the groups would be artificial and could have at most but subgeneric rank, for the second posterior cell, e. g. in *Cladodromia*, varies from sessile to V-shaped, and even to Y-shaped with a short petiole, and *Metachela* as defined included two species, one with the discal cell fused with the second basal and the other with it fused with the third posterior cell. However, a closer inspection shows that the trivial differences in neuration are associated with more fundamental characters in the structure of the wing and correlated at the same time with differences in the form of the body. Accordingly, the old genus *Hemerodromia* has been segregated into two distinct groups, *Hemerodromia*, s. str. (i. e. *Microdromia*) and *Chelifera*. The remaining groups are less important subdivisions of the latter genus, although *Chelifera*, s. str., with its thorax tapering anteriorly, may ultimately be removed from the broad-shouldered others, and *Neoplasta* with its narrow face and slender front legs may likewise be segregated from the rest. In addition, another genus has been erected for two Central American species whose neuration superficially resembles that of *Neoplasta*.

Concerning which of the restricted groups should bear the name *Hemerodromia* there has been much discussion. As this can be settled only by ascertaining the type species, various writers have argued as variously for this or that genotype. The following statement shows the nomenclatural status of *Hemerodromia* and its allies.

Hemerodromia, Meigen. Meigen originally described nine species under this name; the fifth, *mantispa*, Panzer, was selected as the type by Westwood, in 1840. However, in 1823 Macquart had

designated *mantispa*, Panz. as the type of his genus *Chelipoda*, thus removing this species from consideration as the type of *Hemerodromia*. In 1856 Rondani then assigned *oratoria* Fallen, Meigen's third species, as the type of *Hemerodromia*, but subsequent writers have generally accepted Meigen's first species, *monostigma* Meigen, as the type, following the « first species » principle.

However, this is not the whole story and the status of the names is far from being as clear as might be. *Mantispa*, Panzer proves to be *melanocephala* Fabricius: Macquart's *mantispa* is *vocatoria*, Fallen, and *monostigma*, Meigen is *precatoria* Fallen. The following arguments can be made:

1. Macquart's genus *Chelipoda*, with *mantispa* Panzer (= *melanocephala*, Fabricius) specified as its type, may be considered as a complete synonym of *Hemerodromia*, thus using the name in a different sense than agreed on by general usage. Recent codes sanction this procedure, as they make no allowance for mistakes in identification.

2. Or, if we allow for Macquart's misidentification, since he states that his *mantispa* has a discal cell whereas Panzer's species had the discal cell open, and make *mantispa* Macquart (= *vocatoria*, Fallen) the type of *Chelipoda*, we reserve the two oldest names, *Hemerodromia* and *Chelipoda* for two valid genera. This seems certainly the logical proceeding, even though it is forbidden by certain codes of nomenclature.

3. Since Macquart's *mantispa* was erroneously identified, Coquillett in 1903, selected Macquart's second species, *minor* as the type for *Chelipoda*, and as this proved later to be the true *mantispa* of Panzer (= *melanocephala*, Fabricius), in 1910 he placed this genus as a synonym of *Hemerodromia*, both having the same type by late designation. However, in doing this he overlooked Macquart's definite words: « celle nommée *mantispa*, que je considère sous le nom de *Chélipode*, comme le type d'un genre distinct ». While the codes of nomenclature permit the abandonment of a genus if its type should prove to be the same as the previously selected type of an older genus, yet when an author selects the genotype when publishing his genus, that species is no longer available as the type for a polytypical genus. Applying this principle in the present case, Westwood should not have designated *mantispa*, Panzer as type for *Hemerodromia*, as it had already been specified as the type of *Chelipoda*.

4. Many writers (e. g. Bigot, Loew, Williston, Lundbeck, Bezzi, Kertész) have accepted Meigen's first species, *monostigma*, which is either *precatoria*, Fallen or *stigmatica* Schiner, as the genotype; although their reason for doing so is apparently that it was Meigen's first species. This principle is not tenable in any of the present day codes of nomenclature.

5. Therefore Rondani's selection of *oratoria*, Fallen is apparently the earliest indication of a type species for *Hemerodromia*.

* * *

SYNONYMY OF *HEMERODROMIA*, SENSU LATIORE

1. *Hemerodromia*, Meigen, Coquillett (1895, 1903). Type: *oratoria*, Fallen. — **Pl. 3, Fig. 26.**

Microdromia, Bigot. No species mentioned. Type: *oratoria*, Fallen, Coquillett's designation (1902).

2. *Colabris*, nov. gen. Type: *rufescens*, nov. sp.

3. *Chelifera*, Macquart. Type: *raptor*, Macquart, the only species, which is *precatoria*, Fallen. — **Pl. 3, Fig. 28.**

Hemerodromia, Bigot, Loew, Williston, Bezzi, Kertész, Lundbeck. Type: *monostigma*, Meigen, the first species, which is *precatoria*, Fallen.

Mantipeza, Rondani, Coquillett, Melander. Type : *monostigma*, Meigen, the only species, which is *precatoria*, Fallen.

Polydromia, Bigot. No species mentioned. Type : *precatoria*, Fallen, Coquillett's selection in 1903.

Metachela, Coquillett. Type : *collusor*, Melander, Coquillett's designation.

Hemerodromia, Melander (1902).

Neoplasta, Coquillett. Type : *scapularis*, Loew, Coquillett's designation.

Cladodromia, Bezzi. Type : *inca*, Bezzi. Two species were described, *inca* was figured.

Thanategia, nov. subgen. Type : *defecta*, Loew.

4. *Drymodromia*, Becker. Type : *Jeanneli*, Becker, the only species.

I. GENUS HEMERODROMIA, MEIGEN, S. STR.

Hemerodromia, Meigen, Syst. Besch. Vol. 3, p. 61 (1822); Rondani, Dipt. Ital. Vol. 1, p. 148 (1856); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 250, 261 (1903).

Microdromia, Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 557, 563 [1857] (*Microdromyia*); Williston, Trans. Ent. Soc. Lond. Vol. 3, p. 440 (1896); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 253 (1903); Melander, Williston's Man. p. 223 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 299 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 569 (1910); Engel, Deutsche Ent. Zeitschr. 1918, p. 4 (1918); Brunetti, Fauna Brit. India Dipt. Vol. 1, p. 366 (1920).

Characters. — Apart from the general characters possessed by all the Hemerodromias as given previously, the following structures especially pertain to this genus.

Eyes large, the lower facets conspicuously enlarged so as to bring the eyes very close together on the middle of the face, the front short; style one-half to two-thirds as long as the third joint of the antennæ and hairy. Thorax quadrate, when viewed from above, without distinct prescutellar depression, the humeral grooves distinct; scutellum usually rather flat, as large as or larger than the metanotum, with a pair of well-separated setæ; ovipositor usually short and conical. Front coxæ thin, front femora setose. Costa greatly thinned beyond the fourth vein but the hind margin thickened at the very base, humeral crossvein wanting, the auxiliary vein bending forward and fusing with the costa close to the base of the wing and later separating from it, the first vein ending before the middle of the wing, second vein long and straight, pedicel of the second and third veins very short and completely atrophied, discal cell open outwardly, second posterior cell with a long petiole, anal cell wanting, the anal vein passing into the hind margin at its very root.

Geographical distribution.

1. *H. albicornis*, Meigen, Syst. Besch. Vol. 3, p. 64, pl. 23, f. 14 (1822); C. Europe. Macquart, Hist. Nat. Dipt. Vol. 1, p. 348 (1834); Walker, Ins. Brit. Dipt. Vol. 1, p. 144 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 83 (1862); Gericke, Wien. Ent. Zeit. Vol. 5, p. 166, pl. 2, f. 12 (1886); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 95 [1892] (*Microdromia*).
- *H. bipunctata*, Schummel, Arb. Schles. Ges. Vaterl. Kult. Breslau, p. 70 (1832), no description.
2. *H. bivittata*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 766 (1865); Chile. Bezzi, Ann. Mus. Hungar. Vol. 3, p. 453 [1905] (*Microdromia*); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 390 [1909] (*Microdromia*).

3. *H. brachialis*, nov. sp. (1). Costa Rica.
4. *H. brunnea*, nov. sp. (2). Georgia.
5. *H. captus*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 391 (1895); E. United States.
Melander, Trans. Am. Ent. Soc. Vol. 28, p. 237 (1902); Coquillett,
Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903).
6. *H. defessa*, Williston, Trans. Ent. Soc. London, p. 439, pl. 14, f. 166 West Indies.
(1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 237 (1902);
Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903); Bezzi,
Ann. Mus. Hungar. Vol. 3, p. 460 [1905] (*Microdromia*); Bezzi, Nova
Acta Akad. Naturf. Halle, Vol. 91, p. 390 [1909] (*Microdromia*).
7. *H. *detestata*, Meunier (not female), Ann. Sc. Nat. (Zool.) Vol. 7, p. 90, Baltic Amber.
103, pl. 6, f. 6 (1908).
8. *H. dorsalis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 33 [1913] (*Chelipoda*); W. Himalayas.
Fauna Brit. India Dipt. Vol. 1, p. 367 [1920] (*Microdromia*).
9. *H. dorsata*, nov. sp. (3). Java.
10. *H. empiformis*, Say, Journ. Acad. Nat. Sc. Philad. Vol. 3, p. 99 [1823] North America.
(*Ochthera*); Wiedemann, Aussereur. Zweifl. Ins. Vol. 3, p. 446
[1830] (*Ochthera empiformis*); Macquart, Hist. Nat. Dipt. Vol. 2,
p. 519 [1835] (*Ochthera empiformis*); Walker, List Dipt. Brit.
Vol. 4, p. 1100 [1849] (*Ochthera empiformis*); Say, Compl. Writ.
Vol. 2, p. 85 [1859] (*Ochthera*); Melander, Trans. Amer. Ent. Soc.
Vol. 28, p. 236 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5,
p. 264 (1903); Slosson, Ent. News, Philad. Vol. 14, p. 269 (1903);
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 391 (1905).

(1) **Hemerodromia brachialis**, nov. sp. — Length 3 mm. Head, thorax, and the greatly swollen front femora black, rather shining, remainder of legs, halteres and mouthparts whitish-yellow. antennæ brown. Face almost obliterated at the middle, white pruinose, lower occipital orbits white-pollinose. Thorax very lightly dusted, more noticeable in profile, scutellum and metanotum finely rugulose; abdominal hairs sparse and yellow, pygidium large, globose, the upper valves ham-shaped and apically pointed, the large middle valves curved, parallel-sided and apically truncate but terminating in a hook above, ovipositor small and black. Front femora slightly longer than their coxæ, with close small black teeth below which are fringed on each side with longer yellow spine-like hairs, the black color paler at knee, front tibiæ two-thirds as long as femora. Wings hyaline, veins blackish except at yellowish base, pedicel of fourth vein as long as fork, sections of fifth vein 1 : 1.2.

Three males and one female; La Suiza de Turrialba, Costa Rica, April-July, Pablo Schild collector, in Melander Collection. Readily distinguished by the large black front femora.

(2) **Hemerodromia brunnea**, nov. sp. — Female. Length 3 mm. Near *captus* Coquillett, but the fork of the fourth vein is opposite the end of the second vein and thus the pedicel is longer than the second posterior cell. Head black cinereous, the lower orbits prominently white-pruinose; antennæ yellow, the third joint twice as long as broad and three times as long as its arista; eyes subcontiguous on the middle of the face, the lower facets large; proboscis yellow, its tip blackened. Mesonotum brown, opaque pollinose, with two faint indications of broad darker vittæ on the anterior portion; scutellum strongly convex, chocolate-brown like the metanotum; pleuræ brownish yellow; abdominal tergites brown, venter and incisures yellow, ovipositor conical and brown. Front femora subequal in length to their coxæ, with two rows of moderate yellow setæ beneath, front tibiæ terminated by a long slender black spine. Wings normal, veins pale, the second to the fifth sections of the costa proportioned 1 : 1.2 : 3 : 1, sections of the fourth vein proportioned 1 : 0.7 : 2.3 : 1.7, of the fifth vein, 0.8 : 1, distance between the crossveins nearly three times as long as the posterior crossvein.

One specimen; Clayton, Georgia, May, collected by J. C. Bradley.

(3) **Hemerodromia dorsata**, nov. sp. — Female. Length 3.3 mm. Head, dorsum of the thorax and abdominal tergites black, pleuræ, sternites and lateral membrane yellow. Mouthparts and antennæ yellow. Thorax almost shining, tergites matt. Legs yellow, front coxæ slender, as long as their femora, the latter without basal tubercle, but with a pair of spines, front tibiæ three-fifths as long as their femora, with a rather strong black terminal spine. Ovipositor not longer than the broad last abdominal segment. Halteres entirely pale yellow. Wings nearly hyaline, veins blackish except at the base, sections two to five of the costa proportioned 1 : 0.8 : 0.9 : 0.3, fork of the third vein much beyond the end of the second vein, fringe of the hind margin equal in length to the anterior crossvein.

One specimen; Tjibodas, Mount Gede, Java, from the Bryant and Palmer collection. Type in the U. S. National Museum.

vittata, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 210: Cent. 2, No. 56 (1862).

species innom. Williston, Trans. Ent. Soc. London, Vol. 3, p. 440 (1896).

Subsp. *coleophora*, nov. subsp. (1).

11. *H. femorata*, nov. sp. (2).

12. *H. gonatopus*, Speiser, Berl. Ent. Zeitschr. Vol. 52, p. 145 (1907).

13. *H. jugulator*, nov. sp. (3).

— *H. meigeniana*, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 264 (1829), no description.

14. *H. mesomelana*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 390, 392 [1909] (*Microdromia*).

15. *H. ? nigrolineata*, Roser, Correspondenzbl. Landw. Ver. Würtemb. Stuttgart, Vol. 1, p. 53 (1840).

16. *H. nympha*, nov. sp. (4).

Wyoming.

Panama.

E. Africa.

New York.

Peru.

C. Europe.

Java.

(1) *Hemerodromia empiformis*, subspecies *coleophora*, nov. subsp. — Male. Length 3 mm. Head black, lower orbits and face silvery, thorax reddish, the notum centrally black, tergites black except at sides, pygidium shining black; legs, antennæ, mouthparts, venteraud halteres pale yellow. Six flexor spines on front femora in length equal to diameter of tibiæ, basal tubercle of front femora vestigial. Pygidium large, erect, the most conspicuous portion being the obliquely ascending hamate lower valves, the upper valves small, cupuliform, pronged above and furnished with long hairs, base of penis visible, enclosed in a projecting horny sheath. Wings clear, veins yellowish, first posterior cell much constricted at tip, second posterior cell shorter than its petiole, the fork occurring much before the end of the second vein, sections of fourth vein 3 : 2 : 5.5 : 7, of fifth vein 3 : 4.

Female. Ovipositor longer than deep.

Thirteen males, ten females, Yellowstone Park, Wyoming, several places along streams, August 4 to 5, 1918, i. e. the Madison River near the Park West Entrance, and the Cascades of the Firehole River.

(2) *Hemerodromia femorata*, nov. sp. — Female. Length 3.5 mm. Testaceous, including the antennæ and the mouthparts, head and metanotum black, thoracic dorsum with a well defined central blackish vitta which includes the base of the scutellum, abdominal tergites except the last, brown, legs and halteres yellow. Occiput not shining, the lower white-pruinose spot not continuing far along the orbits, front rather narrow, more than twice as long as broad, its lower part reddish, eyes narrowly but entirely separated on the face; third joint of the antennæ ovate, nearly twice as long as wide and three times as long as the style. Thorax very sparsely coated with gray dust, its hairs very sparse and minute, the vitta tapering anteriorly and then suddenly expanding over the humeri: ovipositor shining black, compressed, pointed, as long as the preceding segment. Front coxæ very thin and elongate, nearly as long as the greatly thickened femora, the latter with a prominent spine-bearing tubercle near the base beneath, with strong biseriate black flexor setulæ and with a posterior row of six heavy yellow setæ, front tibiæ three-fourths as long as their femora, tipped with a spur and with a sharp black spine, biseriately black-spinulose beneath, last two joints of the posterior tarsi infuscated. Bases of the third and fifth veins heavy and brown, the second to the fifth sections of the costa proportioned 2.1 : 1 : 1 : 0.3, sections of the third vein, 4 : 1, of the fourth vein, 0.5 : 0.4 : 1 : 1.2, its posterior fork weak, sections of the fifth vein, 0.9 : 1.

One specimen; Alhajuelo, Canal Zone, Panama, March 4, 1912, collected by August Busck for the U. S. National Museum.

(3) *Hemerodromia jugulator*, nov. sp. — Length 3 mm. Head, dorsum and upper side of the abdomen black, pleuræ, venter, legs, antennæ, mouthparts and halteres pale yellow. Occiput dusted with brown, not shining, the lower orbits and the underside of the head densely white pilose, front oblong, more than twice as long as the distance between the posterior ocelli, eyes briefly touching on the lower part of the face; third antennal joint ovate, straight above, two-thirds longer than broad, with the style two-thirds as long as the third joint. Mesonotum very finely and sparsely pollinose so as to appear shining black, its setulæ very sparse; first and last abdominal segments testaceous; pygidium long, erect, subshining, loosely hairy, with two pairs of dorsal forcipate valves and a projecting penis; ovipositor very short, compressed, shining, glabrous. Legs elongated, slender, front coxæ greatly lengthened and very thin, nearly equal to their femora in length, the front femora comparatively slender. Veins brown, thin, the second, third and fourth sections of the costa proportioned 1.3 : 1 : 1, last sections of the third vein proportioned 2.8 : 1, of the fourth vein, 0.5 : 1 : 1, of the fifth vein, 0.9 : 1.

Four specimens; Cold Spring Harbor, Long Island, New York, July, 1913 (Melandrer).

(4) *Hemerodromia nympha*, nov. sp. — Female. Length, including the ovipositor, 3 mm. Very slender, the head, thorax and abdomen black, subshining; antennæ, mouthparts and legs yellow. Front coxæ very slender, five-sixths as long as their femora; the front femora without a basal tubercle, but with a spine, front tibiæ two-thirds as long as their femora, with a sharp apical spine. Base of the very slender and elongate ovipositor yellowish. Halteres black, with a reddish root. Wings somewhat infumated, the second vein longer than usual, fork of the third vein beyond the end of the second vein, fork of the fourth vein as long as its pedicel, second to the fifth sections of the costa proportioned 1 : 0.3 : 0.7 : 0.15, sections of the fifth vein, 1 : 1.6, fringe of hind margin twice as long as the anterior crossvein.

One specimen, in the U. S. National Museum; Tjilodas, Mt. Gede, Java; from the Bryant and Palmer collection.

The species is noteworthy among the restricted genus *Hemerodromia*, in having an elongate ovipositor.

17. *H. oratoria*, Fallen, Empid. p. 11 (1815); ibidem, p. 34 [1816] (*Tachydromia*); Meigen, Syst. Besch. Vol. 3, p. 63, pl. 23, f. 12 (1822); Macquart, Dipt. N. France, Vol. 3, p. 103, pl. 2, f. 7 (1827); Hist. Nat. Dipt. Vol. 1, p. 348 (1834); Zetterstedt, Fauna Ins. Lappon. p. 542 (1838); Dipt. Scand. Vol. 1, p. 262 (1842); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 57 (1851); Walker, Ins. Brit. Dipt. Vol. 1, p. 144, pl. 5, f. 8g (1851); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 145 (1861); Schiner, Fauna Dipt. Austr. Vol. 1, p. 83 (1862); Loew, Wien. Ent. Monatschr. Vol. 8, p. 244 (1864); Lundbeck, Dipt. Danica, Vol. 3, p. 236, f. 103 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 84 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 65 [1913] (*Microdromia*). — (Pl. 3, Fig. 26).
var. *cataluna*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 178 (1909). Spain.
18. *H. orientalis*, Meijere, Tijdschr. v. Ent. Vol. 54, p. 330, pl. 19, f. 25 [1911] (*Microdromia*). Java.
19. *H. raptoria*, Meigen, Syst. Besch. Vol. 6, p. 341 (1830); Macquart, Hist. Nat. Dipt. Vol. 1, p. 348 (1834); Zetterstedt, Dipt. Scand. Vol. 1, p. 264 (1842); ibidem, Vol. 8, p. 3001 (1849); Pipping, Not. Sællsk. Fenn. Förh. Helsingfors, Vol. 4, p. 114 (1858); Zetterstedt, Dipt. Scand. Vol. 13, p. 4984 (1859); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 146 (1861); Loew, Wien. Ent. Monatschr. Vol. 8, p. 243 (1864); Lundbeck, Dipt. Danica, Vol. 3, p. 235, f. 101-102 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 84 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 65 [1913] (*Microdromia*). C. & N. Europe.
20. *H. rogatoris*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 392 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 236 f. 65 [1902] (*Microdromia*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903). North America.
21. *H. simplicinervis*, nov. sp. (1). Philippine Islands.
22. *H. supersticiosa*, Say, Long's Exped. Vol. 2, Append. p. 376 (1824); Wiedemann, Aussereur. Zweifl. Ins. Vol. 2, p. 11 (1830); Say, Compl. Writ. Vol. 1, p. 256 (1859); Osten-Sacken, Cat. N. Amer. Dipt. p. 242 (1878); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 391 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 236 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 [1903] (*Microdromia*). United States.
23. *H. unilineata*, Zetterstedt, Dipt. Scand. Vol. 1, p. 263 (1842); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 57 (1851); Walker, Ins. Brit. Dipt. Vol. 1, p. 144 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 83 (1862); Loew, Wien. Ent. Monatschr. Vol. 8, p. 247 (1864); Wahlgren, Ent. Tidskr. Vol. 31, p. 84 (1910). C. & N. Europe.
24. *H. xiphias*, Bezzi, Suppl. Ent. Berlin, Vol. 3, p. 74 (1914). Formosa.

(1) *Hemerodromia simplicinervis*, nov. sp. — Male. Length 2 mm. Head and body black, legs entirely pale yellow. Head lightly dusted, eyes contiguous below antennæ, lower orbits and the horizontal face white-coated, base of antennæ yellow, last joint broken. Thorax lightly dusted, the metathorax becoming grayish, bristles and sparse setulæ yellowish. Upper valves of genitalia long, slender, forcipate, middle valves triangular. Front coxæ equal to their femora, denticles of front femora and tibiæ black, a few setæ at base of front femora beneath, front tibiæ tipped with a black spur. Halteres pale yellow. Wings yellowish at base, slightly smoky at middle and hyaline at apex, cuneiform, only two posterior veins, no trace of anal cell, fork of third vein forming angle of sixty degrees and ending midway between ends of second and third veins, first posterior cell widest at middle, its veins slightly convergent apically, sections of fifth vein proportioned 1 : 1.5.

Holotype: Mt. Makling, Luzon, Philippine Islands, received from C. F. Baker. This species is remarkable in the fusion of the second and third posterior cells, the fourth vein being simple and not forked. The contiguity of the eyes is also noteworthy.

2. GENUS COLABRIS, NOV. GEN.

Characters. — Eyes large, subcontiguous beneath the antennæ; but the lower facets not greatly enlarged; front very short; antennal style wanting. Thorax not tapering toward the front, the humeral grooves deep, in front of the scutellum the notum is slightly flattened but is not at all concave, scutellum strongly convex, about as large as the metanotum and devoid of bristles; pygidium small, closed, not forcipate; ovipositor very long and slender, ensiform. Front legs raptorial, the front coxæ as robust as their femora, the latter weakly setose. Auxiliary vein straight, completely fusing with the costa beyond its base, no humeral crossvein, basal half of the pedicel of the second and third veins abruptly rudimentary, discal cell fused with the second basal, emitting three simple posterior veins, anal crossvein practically wanting. — it is faintly indicated however and is distinctly separated from the thickened hind margin — costa not abruptly attenuated beyond the fourth vein but continuing around the hind margin.

Type species: *C. rufescens*, nov. sp. The two following species, *rufescens* and *coxalis*, are the only known representatives.

Geographical distribution.

- | | |
|--|---------|
| 1. <i>C. rufescens</i> , nov. sp. (1). | Panama. |
| 2. <i>C. coxalis</i> , nov. sp. (2). | Panama. |

3. GENUS CHELIFERA, MACQUART

A. SUBGENUS CHELIFERA, MACQUART

Chellifera, Macquart, Mém. Soc. Sc. Lille, 1823, p. 150 (1823); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 123 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 247, 263 (1903).

Hemerodromia of authors, Loew, Wien. Ent. Monatschr. Vol. 8, p. 237-255 (1864); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 562 (1857); Williston, Trans. Ent. Soc. Lond. Vol. 3, p. 440 (1896); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 452 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 299 (1909); Lundbeck, Dipt. Dan. Vol. 3, p. 228 (1910).

Mantipeza, Rondani, Dipt. Ital. Vol. 1, p. 148 (1856); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 124 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389, 392 (1895); Williston, Trans. Ent. Soc. Lond. Vol. 3, p. 440 (1896); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 252 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 565 (1910).

(1) *Colabris rufescens*, nov. sp. — Length 2.2 mm. Reddish yellow, the head, metanotum and genitalia black, a diffused prescutellar spot dark brown, the lower mesopleuræ, scutellum and halteres light brown. Lower occiput bearing the usual densely white pruinose orbital mark, front no longer than the distance between the posterior ocelli, eyes very narrowly separated on the face, mouthparts yellow, palpi short; antennæ yellow, the third joint ovate, one-half longer than broad, with a microscopic style. Thoracic setulæ microscopic, the two rows of acrostichals almost contiguous, notum and pleuræ not pollinose, rather shining. Front coxæ but slightly shorter than their femora, of the male inflated, nearly as thick as their femora, of the female slender. Abdomen more or less fuscous, ovipositor nearly as long as the abdomen. Veins strong, brown, the second third and fourth sections of the costa proportioned 2 : 4 : 3.5, sections of the fifth vein proportioned 1 : 2 : 1.

Three specimens; Alhajuelo, Canal Zone, Panama, collected by August Busck. Type in the U. S. National Museum.

(2) *Colabris coxalis*, nov. sp. (Pl. 3, Fig. 27). — Length 2.2 mm. Same as *rufescens*, but the front coxæ are blackish and their hairs are black. Second, third and fourth sections of the costa proportioned 2 : 3.5 : 4.

Two specimens; Alhajuelo, Panama, March. Type in the U. S. National Museum.

Polydromia, Bigot, Ann. Soc. Ent. France (3), Vol. 557, 562 [1857] (*Polydromya*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 256 (1903); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 593 [1910] (*Polydromya*).

B. SUBGENUS CLADODROMIA, BEZZI

Cladodromia, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 453 (1905); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 299 (1909).

C. SUBGENUS METACHELA, COQUILLETT

Metachela, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 253, 263 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 568 (1910).

Hemerodromia, s. str. Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 233 (1902).

D. SUBGENUS NEOPLASTA, COQUILLETT

Neoplasta, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 389, 392 (1905); Williston, Trans. Ent. Soc. Lond. Vol. 3, p. 440 (1896); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 254, 261 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 299 (1909); Coquillett, Proc. U. S. Nat. Mus. Naturf. Halle, Vol. 37, p. 575 (1910).

Characters. — Eyes rather large, the lower facets larger than the upper but not expanding the eyes so as to bring them almost together on the face, as in *Hemerodromia*, front relatively longer, the sides of the face parallel; style one-third to one-twentieth as long as the third antennal joint, bare. Thorax typically gradually narrowed anteriorly, but often the thorax is quadrate, the humeri marked off by distinct grooves, a flattened or depressed space before the scutellum, the scutellum narrower than the metanotum, with two apical setæ placed close together. Front coxæ thin, front femora usually strongly raptorial and setose in front and back. Costa continuing around entire wing-margin, auxiliary vein straight, well-separated from the costa, the humeral crossvein distinct, first vein ending at or beyond the middle of the wing, pedicel of the second and third veins distinct though rather short, anal cell complete, the anal vein separated from the hind margin.

The subgenera of *Chelifera* are characterized as follows :

Chelifera, Macquart, s. str. Discal cell complete, emitting two veins, the anterior of which is forked, thus the second posterior cell has a long petiole; second vein curving around a more or less visible stigma; thorax distinctly tapering anteriorly in surface view; no ovipositor; front femora strongly setose; antennal style very short and bare, one-tenth to one-fourth as long as the third joint of the antennæ.

Type species : *C. precatória*, Fallen (Pl. 4, Fig. 28).

Cladodromia, Bezzi. Discal cell complete, emitting three veins, the second posterior cell sessile or pointed at its base, rarely with a short petiole; thorax opaque, apparently quadrate; ovipositor rather thick and long; front legs strongly setose; antennal style very short.

Type species : *C. inca*, Bezzi.

Metachela, Coquillett. Discal cell fused with the second basal, the anterior crossvein far before the posterior, second posterior cell with a long petiole; thorax not tapering in front; ovipositor ensiform; front femora setose; style one-third as long as the third antennal joint and thick; pygidium erect.

Type species : *Hemerodromia collusor*, Melander.

Thanategia, nov. subgen. Discal cell open outwardly, the anterior crossvein, much beyond the apparent posterior crossvein, second posterior cell with a very long pedicel; thorax not tapering anteriorly; ovipositor blunt not protracted; front femora strongly setose; antennal style microscopic and bare, pygidium large, terminal, the upper valves long, recurved and forcipate.

Type species : *Hemerodromia defecta*, Loew.

SUBGENUS CHELIFERA, MACQUART

Geographical distribution.

1. *C. * detestata*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 90, 103 ♀, pl. 6, f. 3-5 [1908] (*Hemerodromia*). Baltic Amber.
2. *C. Frigellii*, Zetterstedt, Ins. Fauna Lappon. p. 542 [1838] (*Hemerodromia*); Dipt. Scand. Vol. 1, p. 261 [1842] (*Hemerodromia*); ibidem, Vol. 8, p. 3001 [1849] (*Hemerodromia*); ibidem, Vol. 13, p. 4983 [1859] (*Hemerodromia*); Becker, Acta Soc. Sc. Fenn. Helsingfors Vol. 26 (9), p. 33 [1900] (*Hemerodromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 84 [1910] (*Hemerodromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 64 [1913] (*Hemerodromia*). N. Europe, Siberia.
3. *C. melanocephala*, Haliday, Ent. Mag. London, Vol. 1, p. 158 [1833] (*Hemerodromia*); Loew, Wien. Ent. Monatschr. Vol. 8, p. 238 [1864] (*Hemerodromia*); Mik, Wien. Ent. Zeit. Vol. 1, p. 39, pl. 1, f. 16-18 [1882] (*Hemerodromia*); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 95 [1892] (*Hemerodromia*); Lundbeck, Dipt. Dan. Vol. 3, p. 234, f. 100 [1910] (*Hemerodromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 84 [1910] (*Hemerodromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 65 [1913] (*Hemerodromia*). N. & C. Europe.
flavella, Zetterstedt, Fauna Ins. Lappon. p. 543 [1838] (*Hemerodromia*); Dipt. Scand. p. 265 [1842] (*Hemerodromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 56 [1851] (*Hemerodromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 144 [1851] (*Hemerodromia*); Bonsdorff, Finl. tvärv. Ins. Dipt. Vol. 1, p. 146 [1861] (*Hemerodromia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 83 [1862] (*Hemerodromia*); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 133 [1887] (*Hemerodromia*).
4. *C. notata*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 209 : Cent. 2, No. 53 [1862] (*Hemerodromia*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 392 [1895] (*Mantipeza*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 238 [1902] (*Mantipeza*); Coquillett, Proc. Wash. Ent. Soc. Vol. 5, p. 264 (1903). United States.
5. *C. nubecula*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 4, p. 42 [1908] (*Hemerodromia*). Canary Islands.
6. *C. obsoleta*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 208 : Cent. 2, No. 52 [1862] (*Hemerodromia*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 392 [1895] (*Mantipeza*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 238 [1902] (*Mantipeza*); Coquillett, Proc. Wash. Ent. Soc. Vol. 5, p. 264 (1903). United States.
7. *C. palloris*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 392 [1895] (*Mantipeza*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 238 [1902] (*Mantipeza*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903); Slosson, Ent. News Philad. Vol. 14, p. 269 [1903] (*Hemerodromia*). North America.
8. *C. precatatoria*, Fallen, Empid. Suec. p. 10 [1815] (*Tachydromia*); Meigen, Syst. Besch. Vol. 3, p. 63, pl. 23, f. 13 [1822] (*Hemerodromia*); Macquart, Dipt. N. France, Vol. 3, p. 104, pl. 2, f. 8 [1827] (*Heme-*

rodromia); Hist. Nat. Dipt. Vol. 1, p. 347 [1834] (*Hemerodromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 266 [1842] (*Hemerodromia*); Walker, List Dipt. Brit. Mus. Vol. 3, p. 505 [1849] (*Hemerodromia*); Zetterstedt, Dipt. Scand. Vol. 8, p. 3001 [1849] (*Hemerodromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 56 [1851] (*Hemerodromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 143, pl. 5, f. 8 [1851] (*Hemerodromia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 83 [1862] (*Hemerodromia*); Loew, Wien. Ent. Monaschr. Vol. 8, p. 238 [1864] (*Hemerodromia*); Mik, Wien. Ent. Zeit. Vol. 1, p. 39, pl. 1, f. 13, 15 [1882] (*Hemerodromia*); Mik Beck Fauna Hernstein, Vol. 2 (2), p. 59 [1885] (*Hemerodromia*); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 95 [1892] (*Hemerodromia*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 238 [1902] (*Mantipeza*); Strobl, Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 311 [1906] (*Hemerodromia*); Bezzi, Wien. Ent. Zeit. Vol. 26, p. 296 [1907] (*Hemerodromia*); Brocher, Ann. Biol. Lacustr. Bruxelles, Vol. 4, p. 44, 45 [1909] (*Hemerodromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 231, f. 98, 99 [1910] (*Hemerodromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 84, f. 14 [1910] (*Hemerodromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 64 [1913] (*Hemerodromia*).

— **Pl. 3, Fig. 28).**

?*lineata*, Gimmerthal, Bull. Soc. Nat. Moscou, Vol. 9, p. 430 [1836] (*Hemerodromia*).

?*mantiformis*, Cuvier, Millim. Mag. Encycl. Vol. 1, p. 205, pl. 2, f. 3 [1795] (*Asilus*).

monostigma, Meigen, Syst. Besch. Vol. 3, p. 62, pl. 23, f. 6 [1822] (*Hemerodromia*); Macquart, Dipt. N. France, Vol. 3, p. 104, pl. 3, f. 1 [1827] (*Hemerodromia*); Hist. Nat. Dipt. Vol. 1, p. 347 [1834] (*Hemerodromia*); Zetterstedt, Fauna Ins. Lappon. p. 543 [1838] (*Hemerodromia*); Dipt. Scand. Vol. 1, p. 267 [1842] (*Hemerodromia*); Boitard, Man. Ent. Vol. 3, p. 322 [1843] (*Hemerodromia*); Walker, List Dipt. Brit. Mus. Vol. 3, p. 504 [1849] (*Hemerodromia*); Scholz, Zeit. Ent. Breslau, Vol. 5 (19), p. 56 [1851] (*Hemerodromia*); Walker, Ins. Brit. Vol. 1, p. 143 [1851] (*Hemerodromia*); Bonsdorff, Finl. tvåv. Dipt. Vol. 1, p. 146 [1861] (*Hemerodromia*); Glover, Manuscr. Notes, p. 25, pl. 6, f. 7 [1874] (*Hemerodromia*); Strobl, Glasnik. Zem. Mus. Bosn. Herceg. Sarajevo, Vol. 10, p. 12 [1898] (*Hemerodromia*); Mitteil. Nat. Ver. Steiermark, Graz, Vol. 34, p. 207 [1898] (*Hemerodromia*); Wissenschaft. Mitth. Bosn. Herceg. Vol. 7, p. 560 [1900] (*Hemerodromia*).

raptor, Macquart, Mém. Soc. Sc. Lille, 1823, p. 151, 165 (1823).

9. *C. stigmatica*, Schiner, Fauna Dipt. Austr. Vol. 1, p. 83 [1862] (*Hemerodromia*); Milk, Beck Faun. Hernstein, Vol. 2 (2), p. 59 [1885] (*Hemerodromia*); Strobl, Wien. Ent. Zeit. Vol. 18, p. 77 [1899] (*Hemerodromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 233 [1910] (*Hemerodromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 64 [1913] (*Hemerodromia*). C. & S. Europe.
10. *C. trapezina*, Zetterstedt, Fauna Ins. Lappon. p. 543 [1838] (*Hemerodromia*); Dipt. Scand. Vol. 1, p. 264 [1842] (*Hemerodromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 56 [1851] (*Hemerodromia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 83 [1862] (*Hemerodromia*); Strobl, Jahrb. Mus. Kärnten Klagenfurt, Vol. 47, p. 202 [1901] (*Hemerodromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 84 [1910] (*Hemerodromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 64, f. 15 [1913] (*Hemerodromia*). C. & N. Europe.
11. *C. valida*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 208 : Cent. 2, No. 51 [1862] (*Hemerodromia*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 392 [1895] (*Mantipeza*); Proc. Wash. Acad. Sc. Vol. 2, p. 423 [1900] (*Mantipeza*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 238 [1902] (*Mantipeza*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903). North America.

SUBGENUS CLADODROMIA, BEZZI

Geographical distribution.

1. *C. analis*, Thomsen, Eugen. Resa. Dipt. p. 474 [1869] (*Hemerodromia*); Patagonia.
Bezzi, Ann. Mus. Hungar. Vol. 3, p. 454 (1905); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 392 (1909).
2. *C. bicolor*, Philippi, Verh. Zool.-bot. Ges. Wien. Vol. 15, p. 767 [1865] Chile.
(*Hemerodromia*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 454 (1905);
Nova Acta Akad. Naturf. Halle, Vol. 91, p. 392 (1909).
3. *C. boliviana*, Bezzi, ibidem, Vol. 91, p. 391, 396 (1909). Bolivia.
4. *C. cana*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 454 (1905); Nova Acta Peru.
Akad. Naturf. Halle, Vol. 91, p. 391 (1909).
5. *C. flavipes*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 776 [1865] Chile,
(*Hemerodromia*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 453 (1905);
Nova Acta Akad. Naturf. Halle, Vol. 91, p. 391 (1909).
6. *C. fuscimana*, Bezzi, ibidem, Vol. 91, p. 394 (1909). Peru.
7. *C. inca*, Bezzi, Ann. Mus. Hungar. Vol. 3, p. 454, f. 3 (1905); Nova Peru.
Acta Akad. Naturf. Halle, Vol. 91, p. 391 (1909).
8. *C. nigrimana*, Philippi, Verh. Zool.-bot. Ges. Wien. Vol. 15, p. 766 [1865] Chile.
(*Hemerodromia*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 453 (1905);
Nova Acta Akad. Naturf. Halle, Vol. 91, p. 391, 394 (1909).
9. *C. pallida*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 766 [1865]; Chile.
Bezzi, Ann. Mus. Hungar. Vol. 3, p. 454, 459 (1905); Nova Acta
Akad. Naturf. Halle, Vol. 91, p. 390, 391 (1909).
10. *C. plurivittata*, Bezzi, ibidem, Vol. 91, p. 391, 395, f. 16 (1909). Peru.
11. *C. pratincola*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 766 [1865] Chile.
(*Hemerodromia*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 454 (1905);
Nova Acta Akad. Naturf. Halle, Vol. 91, p. 392 (1909).

SUBGENUS NEOPLASTA, COQUILLETT

Geographical distribution.

1. *N. femoralis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 391, 393 Peru.
(1909).
2. *N. mexicana*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 235, f. 56, 60 Mexico.
(1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903);
Bezzi, Ann. Mus. Hungar. Vol. 3, p. 460 (1905); Nova Acta Akad.
Naturf. Halle, Vol. 91, p. 391 (1909).
3. *N. scapularis*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 209 : Cent. 2, No. 54 United States.
[1862] (*Hemerodromia*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18,
p. 392 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 234,
f. 59 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264
(1903); Slosson, Ent. News Philad. Vol. 14, p. 269 [1903] (*Hemero-*
dromia); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 391 (1909).
4. *N. semilugens*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 766 [1865] Chile.
(*Hemerodromia*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 453 [1905]
(*Hemerodromia*); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 391,
393 (1909).

SUBGENUS METACHELA, COQUILLETT

Geographical distribution.

1. *M. albipes*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 505 [1849] (*Hemero-* Hudson's Bay.
dromia); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 391 [1895]

- (*Hemerodromia*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 237 [1902] (*Mantipeza*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 [1903] (*Chelifera*).
2. *M. collusor*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 235, f. 57, 58, W. United States. 64 [1902] (*Hemerodromia*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 (1903).
3. *M. nigriventris*, Loew, Wien. Ent. Monatschr. Vol. 8, p. 242 [1864] (*Hemero-* C. Europe.
dromia); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 95 [1892] (*Lepidomyia*).

SUBGENUS THANATEGIA, NOV. SUBGEN.

Geographical distribution.

1. *T. defecta*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 210 : Cent. 2, No. 55 United States. [1862] (*Hemerodromia*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 391 [1895] (*Hemerodromia*); Melander, Trans. Amer. Soc. Vol. 28, p. 235 [1902] (*Hemerodromia*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 264 [1903] (*Metachela*).

4. GENUS DRYMODROMIA, BECKER

Drymodromia, Becker, Ann. Soc. Ent. France, Vol. 83, p. 121 (1914).

Characters. — Slender, yellow species with full wings and raptorial front legs. Head orbicular, eyes large contiguous below the antennæ; proboscis short and perpendicular; third antennal joint short-conical, longer than the apical style. Thorax short, the prothoracic and supra-alar bristles distinct, otherwise bare. Abdomen elongate, with seven segments. Legs slender, front coxæ long. Wings broad, immaculate, first vein attaining middle of wing, third vein forked, discal cell emitting three posterior veins, anal and basal cells nearly equally long, the anal cell perpendicularly closed.

But one species is known.

Geographical distribution.

1. *D. Jeanneli*, Becker, Ann. Soc. Ent. France, Vol. 83, p. 121 (1914). East Africa.

5. GENUS CHELIPODA, MACQUART

A. SUBGENUS CHELIPODA, MACQUART

- Chelipoda**, Macquart, Mém. Soc. Sc. Lille, 1823, p. 148 (1823); Kertész, Cat. Dipt. Vol. 6, p. 117 (1909).
- Chiromantis**, Rondani (not Peters, 1854, *Reptilia*), Dipt. Ital. Vol. 1, p. 148 [1856] (*Chyromantis*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 344 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 248 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 524 [1910] (*Chyromantis*).
- Litanomyia**, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 231 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 252 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 562 (1910).
- Phyllodromia**, of authors, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 255, 260 (1903); Bezzi, Cat. Palæarct. Dipt. Vol. 2, p. 271 (1903); Kertész, Cat. Dipt. Vol. 6, p. 118 (1909); Lundbeck, Dipt. Dan. Vol. 3, p. 247 (1910); Engel, Deutsche Ent. Zeitschr. 1918, p. 3 (1918).

B. SUBGENUS PHYLLODROMIA, ZETTERSTEDT

- Phyllodromia**, Zetterstedt (not Serville, 1839, *Blattidæ*); Zetterstedt, Isis, Vol. 1, p. 31 (1837); Fauna Ins. Lappon. p. 544, note (1838); Westwood, Gen. Syn. p. 132 (1840); Zetterstedt, Dipt. Scand.

Vol. 1, p. 269 (1842); Walker, Ins. Brit. Dipt. Vol. 1, p. 142 (1851); Rondani, Dipt. Ital. Vol. 1, p. 148 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 563 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 86 (1862); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 590 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 45 (1910); Brunetti, Fauna Brit. Ind. Dipt. Vol. 1, p. 367 (1920).

Chelipoda, of authors, Mik, Wien. Ent. Zeit. Vol. 7, p. 299, 327 (1888); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 247, 261 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 299 (1909); Kertész, Cat. Dipt. Vol. 6, p. 117 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 522 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 245 (1910); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 476 (1912).

Hemerodromia, of authors, Westwood, Gen. Syn. p. 132 (1840); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 550 (1910).

Lepidomyia, Bigot (not Loew, 1864, *Syrphidæ*), Ann. Ent. Soc. France (3), Vol. 5, p. 557, 563 [1857] (*Lepidomyia*); Röder, Wien. Ent. Zeitschr. Vol. 6, p. 169 (1887); Mik, Wien. Ent. Zeitschr. Vol. 7, p. 299, 327 (1888); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 124 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 252 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 559 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 45, 85 (1910); Engel, Deutsche Ent. Zeitschr. p. 3 (1918).

Thamnodromia, Mik, Wien. Ent. Zeit. Vol. 5, p. 278 (1886); Röder, Wien. Ent. Zeit. Vol. 6, p. 169 (1887); Mik, Wien. Ent. Zeit. Vol. 7, p. 299, 327 (1888); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 123 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 258 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 614 (1910).

Characters. — Slender, reddish yellow species with strongly raptorial front legs. Head globular, but a little longer in an obliquely downward direction, the upper occiput small, the front broad; eyes bare, large, with their lower forward facets somewhat enlarged, thus making the face and cheeks narrow. Occiput hairy below but with a single row of setæ above, the uppermost three pairs of which form the vertical bristles; ocelli large, one pair of strong ocellar bristles and usually behind them a pair of lesser ocellars; mouth-opening small and circular, proboscis much shorter than the height of the head, slender and slightly incurved, palpi very small, cylindrical and tipped with several fine hairs: antennæ plainly three-jointed, inserted close together and below the middle of the head, the last joint compressed conical, with a rather thick, long, two-jointed arista, the basal joint of which is minute. Thorax elongate, quadrate, narrower in front than the head, scarcely convex and in front of the small scutellum even flattened, coated with more or less evident gray pollen, humeri small, prothorax visible from above; macrochætæ well developed, one strong posthumeral (possibly to be considered as the foremost dorsocentral), no humeral, two widely separated pairs of dorsocentrals, the anterior of which is sometimes reduced, two scutellars, one supraalar, no postalar, no notopleural, but sometimes some notopleural setulæ, only a single prescutellar pair of the acrostichal setulæ present: metapleuræ with two or three upward-directed setulæ, the mesosternum in profile angulate in the middle, prosternum ridged between the coxæ. Abdomen more or less cylindrical, consisting of seven segments and the genitalia, male with a large to very large epipygium which comprises a strongly compressed, carinate lower part bearing a pair of forcipate valves directed forward over the abdomen; ovipositor very short, fleshy, with two styles. Front coxæ slender and long, over twice as long as the posterior pairs, usually (*Chelipoda*, s. str.) with a basal spine directed forward, front femora incrassate, biserially spinulose beneath, and in front and back serially setose, front tibiæ fitted to close against their femora, no terminal spine or tibial spurs, posterior legs simple, pulvilli minute. Wings margined behind by the prolongation of the costa, in front with a basal costal bristle and with costal hairs, no stigma, auxiliary vein straight, parallel with the costa and vanishing apically, first vein short, second vein long, third

vein not forked, pedicel of the second and third veins arising at the middle of the first basal cell, discal cell complete and with three posterior veins (*Chelipoda*) or open apically and the fourth vein forked (*Phyllodromia*), anal cell subequal to the second basal cell or somewhat shorter, the anal crossvein curved outwardly, anal vein separate from the hind margin of the wing : calypteres with a few cilia.

Nomenclature. Type species : by Macquart's original designation, *mantispa*, Macquart (not Panzer's) = *vocatoria*, Fallen (Pl. 3, Fig. 25). Coquillett (1903), would make *minor*, Macquart = *melanocephala*, Fabricius, the type, and in 1910 considered *Chelipoda* a synonym of *Hemerodromia*. Rondani in 1856 designated *melanocephala*, Fabricius, as the type of *Phyllodromia* and *vocatoria*, Fallen as the type of *Chiromantis*. The next year Bigot founded *Lepidomyia* (not *Lepidomyia*, Loew (1864), a Syrphid, changed by Mik (1886), to *Lepidostola*), on the same *melanocephala*, as *mantispa*, Meigen. *Thamnodromia*, Mik, was a change of name for *Phyllodromia*, Zetterstedt (1837, not 1842), which was thought preoccupied by *Phyllodromia*, Serville (1839). The type of *Phyllodromia* thus becomes the type of *Thamnodromia*. *Litanomyia*, Melander, with type *mexicana*, Wheeler and Melander, by Coquillett's designation, is not generically distinct from *Chelipoda*.

The synonymy of these genera may be thus shown :

Subgenus *Chelipoda*, Macquart, s. str. Type : *vocatoria*, Fallen.

Chiromantis, Rondani. Type : *vocatoria*, Fallen.

Litanomyia, Melander. Type : *mexicana*, Wheeler and Melander.

Phyllodromia of the catalogues.

Subgenus *Phyllodromia*, Zetterstedt. Type : *melanocephala*, Fabricius.

Chelipoda of the catalogues.

Hemerodromia, Westwood and Coquillett, 1910. Type : *melanocephala*, Fabricius.

Lepidomyia, Bigot. Type : *melanocephala*, Fabricius.

Thamnodromia, Mik. Type : *melanocephala*, Fabricius.

Vocatoria possesses a complete discal cell, while in *melanocephala* the discal cell is outwardly open; otherwise these species are structurally very much alike, certainly belonging to the same genus. Bezzi has recently described a curious form from Formosa, which in its reduced chaetotaxy and enlarged anal cell departs markedly from the other species of *Chelipoda*. This species, *pictipennis*, has here been removed to the recently erected genus, *Cephalodromia*, Becker.

Geographical distribution. — Both of the subgenera occur in Europe and North America and *Chelipoda* occurs also in South America and Oceania.

SUBGENUS CHELIPODA, MACQUART

1. *C. albiseta*, Zetterstedt, Fauna Ins. Lappon. p. 544 [1838] (*Hemerodromia*); N. & C. Europe, North America.
Dipt. Scand. Vol. 1, p. 271 [1842] (*Phyllodromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 57 [1851] (*Phyllodromia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 86 [1862] (*Phyllodromia*); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 96 [1892] (*Thamnodromia*); Lundbeck, Dipt. Dan. Vol. 3, p. 250 [1910] (*Phyllodromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 68 [1913] (*Phyllodromia*).
vocatoria, Meigen, Syst. Besch. Vol. 3, p. 65, pl. 23, f. 15 [1822] (*Hemerodromia*); Macquart, Dipt. N. France, Vol. 3, p. 103, pl. 2, f. 6 [1827] (*Hemerodromia*); Hist. Nat. Dipt. Vol. 1, p. 347 [1834] (*Hemerodromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 57 [1851] (*Phyllodromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 86 [1910] (*Phyllodromia*).
2. *C. * delicata*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 90, 109, pl. 6, f. 15 [1908] (*Phyllodromia*). Baltic Amber.

3. *C. * dolosa*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 90, 104, pl. 6, f. 7-11 [1908] (*Phyllodromia*). Baltic Amber.
4. *C. elongata*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 232 [1902] (*Litanomyia*). United States.
5. *C. fascipennis*, Meijere, Tijdschr. v. Ent. Vol. 56, Suppl. 72 [1914] (*Phyllodromia*). Java.
6. *C. fuscicornis*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 478 [1912] (*Phyllodromia*). Formosa.
7. *C. fusciseta*, Bezzi, ibidem, Vol. 10, p. 477 [1912] (*Phyllodromia*). Formosa.
8. *C. indica*, Brunetti, Rec. Indian. Mus. Vol. 9, p. 36 [1913] (*Litanomyia*). India.
Fauna Brit. India, Dipt. Vol. 1, p. 369, pl. 4, f. 16-18 [1920] (*Phyllodromia*).
9. *C. mexicana*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, p. 376 [1901] (*Scioldromia*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 232, f. 63 [1902] (*Litanomyia*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 460 [1905] (*Phyllodromia*). Mexico.
10. *C. nigricans*, nov. sp. (1). Java, Luzon.
11. *C. parva*, nov. sp. (2). Java.
12. *C. rhabdoptera*, nov. sp. (3). Costa Rica.
13. *C. * rustica*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 90, 109, pl. 6, f. 12-14 [1908] (*Phyllodromia*). Baltic Amber.
14. *C. ? supplicatoria*, Meigen, Syst. Besch. Vol. 3, p. 65 [1822] (*Hemerodromia*); Loew, Besch. Posen. Gegend Art. Zweifl. Gatt. p. 22 (1840); Isis, Vol. 7, p. 550 [1840] (*Hemerodromia*). C Europe.
15. *C. vittata*, Arribalzaga, Natur. Argent. Buenos Aires, Vol. 1, p. 294 [1878] (*Hemerodromia*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 454, 459 [1905] (*Phyllodromia*); Brethes, An. Mus. Hist. Nat. Buenos Aires, Vol. 16, p. 290 (1907). Argentina.

(1) ***Chellipoda nigrans***, nov. sp. — Male. Length 2.3 mm. Dark brown, almost black, unicolorous, including the antennæ, mouthparts, genitalia, stiff setæ of the front femora and the general tinge of the wings, legs brownish. Thorax dusted, not shining, the foremost dorsocentral, the supraalar and the intraalar bristles alone strong, the pair of scutellar bristles small; pygidium large, the width of the abdomen not diminishing apically, in outline triangular, terminating above in two forward-projecting, narrow, acuminate valves. Front coxæ tubular, as long as their femora, which are sturdy and strongly setose, front tibiae three-fifths as long as their femora, slightly paler in color than the rest of the legs. Wings uniformly tinged with brown, second basal and anal cells of equal extent, discal cell complete, first vein ending before the middle of the wing, sections two to six of the costa proportioned 1 : 0.4 : 0.3 : 0.3 : 0.3, sections of the fourth vein, 1 : 8 : 6, of the fifth vein, 1 : 0.3.

Type in the U. S. National Museum, Tjibodas, Mt. Gede, Java, from the Bryant and Palmer collection. A specimen received from Prof. C. F. Baker, from Mt. Makling, Luzon, agrees with this species.

(2) ***Chellipoda parva***, nov. sp. — Length 1.8 mm. Head black, dorsum reddish, pleuræ and legs testaceous, abdomen brown. Base of antennæ black, remainder wanting; mouthparts yellowish. Mesonotum subshining, dusted, anterior dorsocentral bristle, i. e. the posthumeral, strong, middle and prescutellar dorsocentrals minute, notopleural, supraalar, and intraalar bristles only moderate. Pygidium moderately large, globular, slightly increasing the diameter of the abdomen, its valves open and shining, medially with a pair of erect hooks, the upper valve bluntly oval. Front coxæ five-sixths, front tibiae three-fourths, as long as their femora, the latter bearing only two setæ on the postero-flexor edge, the femoral setæ yellowish. Halteres yellow, but with brown knob, calypteres blackish. Wings hyaline, veins brown, the second, third and fourth sections of the costa proportioned 1 : 0.4 : 0.3 : 0.3, sections of the fourth vein 1 : 7 : 9, of the fifth vein, 1 : 0.6, discal cell complete, second basal and anal cells coextensive.

Three specimens: Tjibodas, Mt. Gede, Java. Type in the U. S. National Museum.

(3) ***Chellipoda rhabdoptera***, nov. sp. — Male. Length 2 mm. Body black, legs yellow, wings hyaline, pictured with a blackish gray band at end of marginal cell widening to hind margin and another faint cloud at middle of discal cell. Face linearly triangular, basal joints of antennæ yellow, third joint ovate black, arista two times antennal length and black; mouthparts yellow; head bristles strong and yellow, sides of mesonotum broadly pruinose, bristles brown, pleuræ becoming brown at insertion of the yellow coxæ. Pygidium greatly enlarged, reflexed, valves terminating in a thin curved process, penis long, thread-like, reflexed over the genitalia. Inner flexor side of the swollen front femora armed with five yellow setæ, outer flexor side with about seven small yellow setæ, under side minutely black-denticulate, hind tibia with expanded tip. Veins pale yellow in the hyaline portions of the wing, dark in the cloudings; halteres yellow.

Holotype, La Suiza de Turrialba, Costa Rica, April, 1922 (P. Schild), in Melander Collection.

16. *C. vocatoria*, Fallen, Empid. Suec. p. 12 [1815] (*Tachydromia*); Zetterstedt, Fauna Ins. Lappon. p. 544 [1838] (*Hemerodromia*); Dipt. Scand. Vol. 1, p. 270 [1842] (*Phyllodromia*); Mik, Wien. Ent. Zeit. Vol. 7, p. 327 [1888] (*Thamnodromia*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 345 [1902] (*Chiromantis*); Lundbeck, Dipt. Danica, Vol. 3, p. 249, f. 110 [1910] (*Phyllodromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 68 [1913] (*Phyllodromia*). — **Pl. 3, Fig. 25.**
mantispa, Macquart (not Panzer), Mém. Soc. Sc. Lille, 1823, p. 149 (1823); Dipt. France, Vol. 3, p. 102, pl. 2, f. 5 [1827] (*Hemerodromia*); Hist. Nat. Dipt. Vol. 1, p. 349, pl. 8, f. 8 [1834] (*Hemerodromia*).

SUBGENUS PHYLLODROMIA, ZETTERSTEDT

Geographical distribution.

1. *P. flavida*, Brunetti, Rec. Indian Mus. Vol. 9, p. 33 [1913] (*Chelipoda*); India.
Fauna Brit. India, Dipt. Vol. 1, p. 368, f. 34, pl. 4, f. 14, 15 (1920).
2. *P. fusca*, Bezzi, Suppl. Ent. Berlin, Vol. 3, p. 73 [1914] (*Chelipoda*). Formosa.
3. *P. melanocephala*, Fabricius, Ent. Syst. Vol. 4, p. 407 [1794] (*Empis*); Syst. Europe.
Antl. p. 144 [1805] (*Tachydromia*); Fallen, Emp. Suec. p. 12 [1815] (*Tachydromia*); Haliday, Ent. Mag. London, Vol. 1, p. 158 [1833] (*Hemerodromia*); Zetterstedt, Fauna Ins. Lappon. p. 544 [1838] (*Hemerodromia*); Dipt. Scand. Vol. 1, p. 269 (1842); Walker, Ins. Brit. Dipt. Vol. 1, p. 142, pl. 5, f. 7 (1851); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 146 (1861); Siebke, Nyt Mag. Naturvid. Vol. 14, p. 379, 380 (1866); Loew, Ber. Naturh. Ver. Augsburg, Vol. 20, p. 46 (1869); Siebke, Dipt. Norv. Cat. p. 20 (1877); Neuhaus, Dipt. March. p. 74 (1886); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 96 [1892] (*Chelipoda*); Bezzi, Kat. Palæarct. Dipt. Vol. 2, p. 271 [1903] (*Lepidomyia*); Lundbeck, Dipt. Danica, Vol. 3, p. 6, 247, f. 108, 109 [1910] (*Chelipoda*); Wahlgren, Ent. Tidskr. Vol. 31, p. 85 [1910] (*Lepidomyia*); Dahl, Fauna Chorin. p. 466 [1912] (*Lepidomyia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 68 [1913] (*Chelipoda*).
mantispa, Panzer, Fauna Germ. Vol. 103, p. 16 [1806] (*Tachydromia*); Meigen, Syst. Besch. Vol. 3, p. 64, pl. 23, f. 9 [1822] (*Hemerodromia*); Boitard, Man. Ent. Vol. 3, p. 322 [1843] (*Hemerodromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5, p. 57 [1857] (*Hemerodromia*); Mik, Wien. Ent. Zeit. Vol. 7, p. 327 [1888] (*Chelipoda*); Bezzi, Kat. Palæarct. Dipt. Vol. 2, p. 271 [1903] (*Lepidomyia*).
minor, Macquart, Mém. Soc. Sc. Lille, 1823, p. 148, 165 [1823] (*Chelipoda*).
obsecratoria, Walker, Ent. Mag. London, Vol. 4, 228 [1837] (*Hemerodromia*); List Dipt. Brit. Mus. Vol. 3, p. 505 [1849] (*Hemerodromia*).
raptor, Latreille, Gen. Crust. Ins. Vol. 1, pl. 16, f. 11, 12 [1806] (*Sicus*); ibidem, Vol. 4, p. 304 [1809] (*Sicus*), no description; Loew, Wien. Ent. Monatschr. Vol. 8, p. 248, note [1864] (*Hemerodromia*).
4. *P. *vaga*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 90, 106, pl. 6, f. 16, Baltic Amber.
pl. 7, f. 1 [1908] (*Lepidomyia*).

6. GENUS CEPHALODROMIA, BECKER

Cephalodromia, Becker, Ann. Soc. Ent. France, Vol. 83, p. 121 (1914).

Characters. — Occiput drawn out horizontally; eyes approximate beneath the antennæ, the ocelli midway between the antennæ and the vertex; antennæ three jointed, the third joint elongate, furnished with fine hairs and with a long pubescent terminal arista; mouthparts small, the proboscis

slightly porrect; no vertical bristles, a single pair of small ocellar bristles, lower occiput bearded with white hairs. Thorax bare except for a single pair of strong supraalar bristles. Pygidium large, reflexed over the abdomen, bare and closed. Front coxæ much longer than the posterior pairs, legs slender, front femora somewhat thickened. Wings cuneiform, no axillar lobe, costa continuing around the hind margin, hairy, humeral crossvein present, first vein short, second vein long, third vein not forked, ending at the tip of the wing, pedicel of the second and third veins arising from the middle of the first basal cell, discal cell open outwardly the fourth vein forked, anal cell large, in length slightly shorter than the second basal, but in breadth three times as wide as the second basal and extending to the hind margin of the wing, the anal vein fused with the fimbriate hind margin.

Type species : *C. curvata*, Becker. The preceding generic description has been furnished mainly by the detailed description of *C. pictipennis*, Bezzi. Bezzi provisionally placed his species in *Chelipoda*, from which it differs in the enlarged basal cells, the long level occiput, the lack of vertical and discal bristles and the bifasciate wings. The genotype has the wings uniformly yellowish.

Geographical distribution.

1. *C. curvata*, Becker, Ann. Soc. Ent. France, Vol. 83, p. 121 (1914). E. Africa.
2. *C. pictipennis*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 476, f. 5 [1912] (*Chelipoda*); Suppl. Ent. Besch. Vol. 3, p. 73 [1914] (*Chelipoda*). Formosa.

7. GENUS PTILOPHYLLODROMIA, BEZZI

Ptilophyllodromia, Bezzi, Ann. Mus. Nat. Hungar. Vol. 2, p. 344 (1904).

Characters. — Elongate, opaque black, cinereous pruinose species with yellow legs, the front coxæ elongate, the front femora raptorial, the antennæ lengthened and with plumose arista, the neurulation quite as in *Chelipoda*, and the anterior legs of the male deformed. Head round, eyes broadly separated above, two ocellar and two vertical bristles which are robust but short; face narrower than the front; proboscis short, palpi small and yellow; antennæ greatly lengthened, first joint long, obconic, three times the length of the spherical second joint, third joint pyriform, as long as the first joint, bearing a thick apical arista nearly as long as the antenna and which is heavily plumose below. Thorax a little longer than the abdomen, front legs placed up toward the head, distant from the posterior pairs which are close together, scutellum very small, metanotum well developed; one humeral, one prescutellar dorsocentral, one supraalar and two small scutellar bristles present; metapleuræ with three or four hairs. Abdomen compressed, with short hairs, pygidium strongly compressed, upper lamellæ rounded. Front coxæ subequal to the femora in length, armed with black subapical tubercle and with a row of setæ, front femora incrassate, raptorial, denticulate and setose beneath and with cilia above, posterior femora without setæ, middle tibiæ incurved, apically dilated and with long hairs and subapical pencil on the extensor side, middle metatarsi tuberculate above, tarsal claws small. Wings cuneate, no costal bristle, no stigma, third vein not furcate, discal cell complete, posterior cells sessile, anal cell rounded apically and as long as the second basal. According to Dr. Bezzi's figure the basal half of the costa bears outstanding hairs and the vein in front of the anal cell is setose.

The type species, *P. Biroi*, is the only known form of this remarkable genus. It was collected in New South Wales, Australia.

Geographical distribution.

1. *P. Biroi*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 345, f. 5 (1904). Australia.

SUBFAMILY TACHYDROMIINÆ

Characters. — Small species in which the neurulation is greatly reduced. Head globular; eyes generally separated above the antennæ, but in *Symbalophthalmus* there contiguous, often more or less approached below the antennæ in both sexes, in which case the lower facets may be larger, often pubescent; antennæ short, two- or three-jointed, the arista one- or two-jointed, usually hairy, generally apical but sometimes subdorsal; proboscis short, incurved or perpendicular, in the latter case more slender, in the former case strong at the base and pointed, no labella, palpi one-jointed, incumbent, often broad; vertical bristles usually well developed.

Thorax stout and short as compared with the abdomen, often pubescent and with discal bristles, metapleuræ bare; pygidium asymmetrical, with an unpaired upper valve. Legs sometimes slender, as in *Tachydromia*, sometimes stout, as in *Platypalpus*, coxæ not long, middle legs sometimes raptorial and armed, femora often thickened. Wings with reduced anal angle, costa continuing to the fourth vein, auxiliary vein always rudimentary or imperfect. third vein unforked, no discal cell, that is, the discal cell is fused with the second basal, basal cells large, the first and second basals equal or the second longer, three posterior cells, anal cell weak or wanting, the anal vein incomplete even when best developed but most often wanting, anal crossvein if present perpendicular, when present the anal cell is shorter than the basal cells, usually no stigma, no alula. Calypteres closely united to the base of the wing and possessing a small fringe.

TABLE OF THE GENERA AND SUBGENERA OF THE TACHYDROMIINÆ

- | | |
|---|--------------------------|
| 1. Thorax slender, much longer than broad, the humeri large, strongly constricted; proboscis vertical and slender, palpi usually narrow; legs slender, cursorial and not bristly, front femora usually thickened | 2. |
| Thorax broader, the humeri rarely large; legs hairy and usually with bristles or setæ; proboscis usually inflexed and stronger at the base, palpi usually quite broad | 6. |
| 2. Wings and halteres present, marginal cell long | 3. |
| Wings and halteres entirely lacking | Genus PIELTAINIA, Arias. |
| 3. First basal cell evidently shorter than the second; black species; front femora thickened | 4. |
| First basal cell slightly longer than the second; only the outer angle of the anal cell present; yellow species with black head; last tarsal joint broadened, femora slender | Genus DYSALETRIA, Loew. |
| 4. Anal crossvein present; proboscis longer than the palpi; third antennal joint oval, with apical arista; front narrow, its sides parallel; thorax elongate, narrowed anteriorly, mesonotum more or less pruinose; wings more or less nebulous (Pl. 4, Fig. 31). Anal crossvein completely wanting; proboscis often shorter than the palpi | 5. |
| 5. Front narrow, its sides straight and nearly parallel; palpi narrow and elongate, but usually shorter than the proboscis, subshining and usually with an apical seta; face linear; antennal emargination of the eyes small, lower facets but slightly larger than the | |

- upper; wings pictured usually with crossbands, basal cells long, the posterior crossvein located near the middle of the wing, marginal cell long, the second section of the costa usually much longer than the third section; polished species with the thorax narrowed in front (Pl. 4, Fig. 29). Genus *TACHYDROMIA*, Meigen.
- Front relatively broad and V-shaped, its sides bowed outwardly; palpi oval or elongate oval, white, densely hairy, rarely with an apical seta, longer than the short proboscis; eyes contiguous below the antennæ obliterating the face, the lower facets large, the antennal emargination relatively deep; wings nearly or quite hyaline, basal cells short, the posterior crossvein near the basal third of the wing, second and third sections of the costa usually subequal; species sometimes pollinose and with quadrate thorax (Pl. 4, Fig. 35) Genus *TACHYEMPIS*, nov. gen.
6. First basal cell equal to or longer than the second, anal cell not formed; opaque pollinose species; eyes widely separated on face and front; two pairs each of ocellar and vertical bristles 7.
- First basal cell shorter than the second, if the basal cells are subequal the eyes are close together either above or beneath the antennæ or the middle tibiæ are spurred; abdominal pits, especially the dorsal ones, rarely visible; one pair of diverging ocellar bristles and usually one pair of verticals 11.
7. Arista apical; humeri constricted; legs not evidently bristly; cheeks linear, face narrower than the front; ocellar bristles diverging; notum with coarse hairs but no strong anterior dorsocentrals; abdominal segments without dorsal pits. Genus *CHARADRODROMIA*, nov. gen.
- Arista subapical or dorsal; humeri not constricted; legs bristly; cheeks at least one-fourth the eye-height, face at least as broad as the front; abdomen with dorsal as well as lateral pittings. 8.
8. Mesonotum with discal bristles; last joint of the antennæ bare and with a subapical bare arista; eyes bare; lower ocellar bristles converging 9.
- No discal bristles on the thorax; third antennal joint pubescent and bearing a dorsal pubescent arista; eyes pubescent; lower ocellar bristles diverging Genus *HALSANALOTES*, Becker.
9. Wings as long as or surpassing the abdomen, their hind margin ciliate 10.
- Wings aborted, about one-third as long as the abdomen and bare on their hind margin; arista dorsal (Pl. 7, Fig. 71). Genus *THINODROMIA*, Melander.
10. Cheeks one-third the eye-height; first vein long, ending at two-thirds the length of the wing, first section of the costa not ciliate; femora, especially the hind pair, with numerous strong bristles; two presutural dorsocentrals present; antennæ plainly three-jointed; pulvilli large (Pl. 7, Fig. 70). Genus *COLOBONEURA*, Melander.
- Cheeks narrower, usually one-sixth the eye-height; first vein ending near the middle of the wing, the first section of the costa usually

- ciliate with long hairs; femora not remarkably bristly; one presutural dorsocentral; antennæ apparently two-jointed; pulvilli small* Genus *CHERSODROMIA*, Walker.
11. *The two basal cells of the same length; eyes nearly or quite contiguous in part; legs slender and simple, neither the middle nor the hind tibiæ spurred; discal bristles of thorax rarely present* 12.
- First basal cell evidently shorter than the second; eyes separated at least on the front: if the basal cells are equal the middle femora and tibiæ are seriatim setulose beneath* 14.
12. *Anal cell completely wanting; sides of the front diverging above; basal cells short; third joint of the antennæ with a dorsal arista; one pair of converging preocellar bristles; arista geniculate (Pl. 4, Fig. 32)* Genus *MICREMPIS*, nov. gen.
- Anal vein and sometimes anal crossvein present; basal cells long; last segments of the female abdomen lengthened; third joint of the antennæ lanceolate and with a terminal arista* 13.
13. *Anal crossvein present, wings slender, the anal angle much reduced; eyes bare; palpi minute; eyes contiguous on the front* Genus *SYMBALLOPHthalmus*, Becker.
- Anal crossvein absent, wings broad, the anal angle large; eyes pubescent; front and face linear; antennæ two-jointed, arista thickened; scutellum large and flat (Pl. 4, Fig. 33)* Genus *MEGAGRAPHIA*, nov. gen.
14. *Anal cell more or less formed; sides of the front parallel or slightly diverging; arista terminal; middle femora strongest and with two rows of flexor denticles or setulæ; middle tibiæ with one row of flexor denticles and ending in a more or less sharp spur; pleuræ usually largely pollinose; thorax longer than broad* Genus *PLATYPALPUS*, Macquart. 15
- Anal cell completely wanting; front femora stronger than the middle femora, the middle femora rarely armed; thorax scarcely or not longer than broad* 16.
15. *Last tarsal joint short and flattened (Pl. 4, Fig. 30)* Subgenus *PLATYPALPUS*, Macquart.
- Last joint of the front and middle tarsi greatly lengthened* Subgenus *CLEPTODROMIA*, Corti.
16. *Arista dorsal, the antennæ apparently two-jointed, the last joint minute; eyes contiguous below the antennæ, sides of the front usually parallel (Pl. 4, Fig. 37)* Genus *STILPON*, Loew.
- Arista terminal or subterminal, antennæ three-jointed; eyes more or less separated below the antennæ, sides of the front usually diverging above* Genus *DRAPETIS*, Meigen. 17.
17. *More or less yellow species; first section of the costa with longer cilia than on the following sections; legs slender; antennæ horizontal, the second joint without a seta beneath; hind tibiæ with an extensor bristle and apical spur* 18
- Black species; costa uniformly short-ciliate; antennæ directed obliquely upward* 19.
18. *Third antennal joint lanceolate, the arista relatively short; middle segments of abdomen laterally with flattened setulæ; wings oval* Subgenus *ELAPHROPEZA*, Macquart.

- Third antennal joint not lengthened; middle segments of the abdomen with hair-like setulae; wings narrow, the anal angle greatly reduced; costa with long cilia (Pl. 4, Fig. 36) . . .* Subgenus CTENODRAPETIS, Bezzi.
19. *Legs without strong bristles, no tibial spur; second joint of antennae without a seta or with but a short one; notum densely covered with appressed pubescence, no humeral or discal bristles present.* Subgenus DRAPETIS, Meigen.
- Legs with bristles and the hind tibiae with an evident terminal spur; second joint of antennae with a strong seta beneath; pubescence of thorax more erect, humeral and sometimes discal bristles present (Pl. 4, Fig. 34).* Subgenus EUDRAPETIS, Melander.

I. GENUS TACHYPEZA, MEIGEN

Tachypeza, Meigen, Syst. Besch. Vol. 6, p. 341 (1830); ibidem, Vol. 7, p. 94 (1838); Zetterstedt, Fauna Ins. Lappon. p. 345 (1838); Dipt. Scand. Vol. 1, p. 312 (1842); Rondani, Dipt. Ital. Vol. 1, p. 147 [1856] (*Tachypeza*); Bigot, Ann. Soc. France (3), Vol. 5, p. 563 (1857); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 15 (1864); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 124 (1889); Williston, Man. N. Amer. Dipt. p. 75 (1896); Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 42 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 258, 261 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 222 (1908); Kertész, Cat. Dipt. Vol. 6, p. 136 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 611 (1910); Lundbeck, Dipt. Danica, Vol. 3, p. 262 (1910); Melander, Psyche, Vol. 17, p. 49 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 45, 87 (1910); Brunetti, Fauna Brit. India, Dipt. Vol. 1, p. 378 (1920).

Characters. — Slender, moderate-sized species of black coloration, with usually nebulous wings and nearly devoid of hairs and bristles. Head higher than broad, the eyes large, bare, in both sexes meeting beneath the antennae particularly along the middle of the face, the facets of nearly uniform size, the hinder margin of the eye with an anterior curve, but rather angulate at the bottom; front quite narrow, its sides nearly parallel, but bowed about the ocellar protuberance which is placed rather far forward and bears three large ocelli but no bristles; occiput conical, with several short stiff black bristles above and numerous white hairs below; cheeks linear. Antennae two-jointed, without bristles, the outer joint ovate, slightly pubescent, with a long, bare, one-jointed, apical arista. Proboscis slender, vertical, about one-half as long as the head-height, the labium trilobed at the tip; palpi narrow, one-half as long as the proboscis, tipped with several strong bristles. Thorax oblong, tapering in front of the wings, flattened, the humeri large and marked off by coarse grooves; no humeral bristle, one or two short stiff notopleural, two rows of microscopic acrostichal setulae, dorsocentrals uniseriate, microscopic except the prescutellar one which is usually stiff and large, postalar callus strong but without bristle, two straight stiff scutellar bristles; pleurae shining or pollinose, without bristles; abdomen comprising eight segments, the first ventral not chitinized, in the female tipped with two slender styles, in the male the pygidium is terminal, globular below. Front legs with rather large coxae and swollen femora, hind legs long and slender, anterior femora and tibiae biserially setulose beneath, middle femora with a basal flexor bristle sometimes borne on a tubercle, no tibial spurs, spines or bristles, pulvilli small. Wings slender, elongate, no alula, costa extending to the fourth vein, somewhat thickened at the termination of the first vein, its hairs very short, costal bristle minute, cilia of anal angle longer and looser; basal cells long, posterior crossvein perpendicular or oblique, located just before the middle of the wings and one or two times its length beyond the anterior crossvein, first vein ending beyond the middle of the wing,

marginal cell long, first posterior cell narrow, with parallel veins; anal crossvein strong but the anal vein wanting; calypteres fringed.

Type species: *T. nubila*, Meigen, by designation of Rondani in 1856. Meigen in 1822 separated his species of *Tachydromia* into two groups, calling them A and B. In 1827 Macquart gave the name *Platyphalus* to group B, and in 1830 Meigen called his group A *Tachypeza*. It is from group A that Loew in 1863 separated his genus *Tachista*, which, containing the genotype of *Tachydromia* has become a synonym of that genus.

The species of *Tachypeza* are often found running up and down the trunks of trees, especially such as have smooth bark. They carry their wings held against the abdomen and are loathe to take to flight. They can easily be collected by blowing them with a puff into the insect net. The earlier stages are not known with certainty.

KEY TO THE NEARCTIC SPECIES OF TACHYPEZA

1. Pleuræ opaque. 2.
Mesopleuræ largely or wholly shining, devoid of pollen 6.
2. Crossveins separated by three times their length; front femora dark
exteriorly and yellow interiorly, middle femora with basal tubercle *T. DISTANS*, nov. sp. (1).
Crossveins separated by their own length 3
3. Anterior femora ♂♀ yellow inside and dark outside 4.
Front femora ♂ with black marks inside; crossveins not more smoky
than longitudinal veins 5.
4. Crossveins more smoky than veins; hind femora blackish; middle
femora brownish, in ♂ with basal tooth, tibiæ with blackened apex,
middle metatarsi ♂ flat. *T. DISCIFERA*, nov. sp. (2).

(1) ***Tachypeza distans***, nov. sp. — Male. Length 3.2 mm. Antennæ reddish yellow, tipped with brown; mouth parts yellowish, apical seta of palpi pale brown. Thorax entirely pollinose. Abdomen subshining. Legs mainly yellow, marked with brown as follows, outside of front femora and tibiæ, subbasal and apical bands of middle tibiæ, apical half of hind femora except above, base and apex of hind tibiæ and last joint of all tarsi; front femora spongy pubescent below, flexor side of front tibiæ spongy pubescent in front and seriatly black-setulose behind; middle femora with strong basal setigerous tubercle, near which are several yellow setæ. Halteres yellow. Wings hyaline, first vein thickened, first posterior cell coarctate, as wide at middle as the marginal and submarginal cells together, hind crossvein remote from the anterior and very oblique, the distance between the two more than three times the length of either, last section of fifth vein two-thirds the length of the preceding.

Holotype, Kamiac Butte, Washington (Melander).

(2) ***Tachypeza discifera***, nov. sp. (Pl. 4, Fig. 31). — Length 3 mm. Head and thorax uniformly opaque cinereous; sides of front parallel; basal antennal joint yellow, the outer joint brown, rounded ovate, with terminal arista nearly four times the length of the antennæ: palpi pale yellow, with sparse white hairs and with a single black bristle near the end; proboscis robust, vertical, nearly as long as the height of the head, black at base and apex. No humeral bristles, but the usual dorsocentral, scutellar and notopleural pairs present. Abdomen subshining, hypopygium small, not noticeably hairy, the last ventral segment fringed. Legs dusky yellow, the hind femora, the upper side of the middle femora, the tips of all the tibiæ and the end of the tarsi blackish, posterior tibiæ with a broad darker ring toward the base; front femora ♂ white-ciliate beneath but not marked with black, front tibiæ scarcely thickened, the inside closely setulose, middle femora loosely setulose within, and in the ♂ near the base with a strong mamillate tubercle bearing a pair of yellow spines, middle tibiæ closely setulose within, and in the ♂ flatly excised toward the end, the middle metatarsi of the ♂ broadly flattened so as to be one-fifth as broad as long, and densely setulose on the edges. Halteres entirely yellowish. Outer two-thirds of the wings lightly infumated and with blackish veins, root of the fifth vein pale, third section of the costa about three times as long as the fourth section, the fourth vein bent forward near the tip, crossveins subequal, their separation less than their length, last section of the fifth vein three-fourths as long as the preceding section.

Numerous specimens from Powell Co, Montana, July, collected by Wm. M. Mann: one specimen from Moscow, Idaho, taken by Dr. J. M. Aldrich.

- Crossveins smoky; outer side of anterior femora with central clearer space in the dark area (variation with front femora nearly black); hind femora and tibiae with middle pale ring T. INUSTA, Melander.
5. Front femora ♂ with two round black marks inside; middle femora not tuberculate, hind femora dark; front tibiae closely setulose inside; second antennal joint black T. CORTICALIS, Melander.
- Front femora ♂ with one large and one or two small black spots inside; middle femora ♂ with tubercle at base beneath, hind femora with middle pale ring; front tibiae not setulose; antennae red T. ANNULARIS, nov. sp. (1)
6. Palpi, halteres, legs and wings blackish T. WINTHEMI, Zetterstedt.
- Palpi, halteres, more or less of legs, and at least base of wings paler 7.
7. Second basal cell but little longer than the first, its crossvein perpendicular; proboscis reddish at base 8.
- Second basal cell longer than the first by at least the length of the posterior crossvein; proboscis mostly or wholly black 12.
8. Front coxae and femora ♂ marked with black, front femora ciliate beneath with black hairs; sides of front ♂ parallel; veins strong ♂ ♀; hypopygium with black hairs above. T. BRACHIALIS, Melander.
- Front coxae and inside of front femora not or inconspicuously marked; veins not strong 9.
9. Front tibiae ♂ incrassate apically, ♂ legs largely blackish, ♀ legs more yellow, hind tibiae tipped with black. T. CLAVIPES, Loew.
- Front tibiae not especially incrassate 10.
10. Front femora ♂ not ciliated; wings dark beyond the base; hypopygium large; hind knees paler. 11.
- Front femora ciliate beneath with pale hairs; wings uniformly gray; tibiae of uniform color T. POSTICA, Walker.
11. Middle tibiae ♂ with a strong excision before the apex; palpi brown; hypopygium hairy; outer side of front femora with a black streak, two-fifths of the hind femora yellow; third section of the costa nearly four times the fourth T. EXCISA, nov. sp. (2).

(1) *Tachypeza annularis*, nov. sp. — Length 3 mm. Occiput opaque cinereous, with six black bristles above and numerous white ones below; antennae red, the outer joint rounded oval, the subterminal arista four times the length of the antennae; palpi white, with white hairs and two terminal whitish bristles; proboscis reddish, with dark tip. Notum and pleurae uniformly opaque cinereous, no humeral bristles. Abdomen opaque piceous, the shining black hypopygium relatively small, its upper lamellae with a few short hairs. Legs moderately strong and mostly yellow, the front femora ♂ with a subapical black spot and a central round black dot on the flexor side, and with another black spot on the inside proximal to the middle, these three spots wanting in the ♀, the outside of the front femora with a preapical black spot, more or less prolonged below in the ♀, the hind femora and tibiae with the basal and apical thirds black, middle tibiae tipped with black and with a suffused dark band below the knee; front femora not ciliate or setulose, middle femora black-setulose beneath and in the ♂ with a strong basal tubercle bearing several pale bristles, the front tibiae scarcely thickened and not setulose, the middle tibiae closely setulose beneath and in the ♂ deeply excised near the tip. Halteres entirely pale yellow; calypteres with nine pale hairs. Wings hyaline, a little infumated at the middle, veins narrow, especially apically, the root of the fifth vein pale, the fourth vein gently curved forward, the third section of the costa scarcely three times the fourth section, posterior crossvein longer than the anterior, the distance between them equal to the anterior crossvein, the last section of the fifth vein three-fourths as long as the preceding section.

Fieldbrook and Santa Cruz Mountains, California (U. S. N. M.); Mount Constitution, Washington, 17 July, 1909.

(2) *Tachypeza exolae*, nov. sp. — Male. Length 4 mm. Occiput pollinose, cinereous below, above with four stiff proclinate black bristles, the lower occiput with numerous white hairs; front cinereous, moderately narrow, widest at the ocelli, its lower sides parallel, ocellar bristles minute; antennae yellow, the third joint lanceolate, the terminal brown

- Middle tibiæ ♂ slightly excised; palpi yellow; hypopygium without long hair; hind knees narrowly yellow; third section of costa two to three times the fourth section T. ROSTRATA, Loew.
12. Pruinosity of humeri encroaching on mesopleuræ; femora (♀) not striped with black, hind tibiæ blackish; antennæ red T. PRUINOSA, Coquillett.
- Pleuræ not pruinose beneath the notopleural suture 13.
13. Front femora ♂ marked with black, hind tibiæ yellow with black tip; antennæ yellow 14.
- Legs uniformly blackish, not marked with black spots; antennæ blackish T. DOLOROSA, nov. sp. (1).
14. Front trochanters and coxæ ♂ with black spot, front femora ♂ with a black line beneath; wings smoky except at base T. FENESTRATA, Say.
- Coxæ and trochanters not marked, front femora ♂ with two black spots; fifth vein strong even at base. 15.
15. Middle femora ♂ tuberculate at base; apex of posterior tibiæ and underside of hind femora black; veins smoky in middle of wing, the outer third of wing not dark; humeri pollinose T. BINOTATA, nov. sp. (2).

arista two and one-half times the length of the antennæ: palpi brown, with pale hairs and with a terminal black bristle; proboscis yellow, its tip black. Mesonotum and humeri subshining through the scabrous coating which extends over the notopleural suture near the root of the wing and thinly covers the posterior half of the pleuræ; the usual pair of stiff dorso-central and scutellar bristles present. Abdomen opaque except the large globose hypopygium, whose upper appendages are furnished with dense curved hairs. Legs robust, the front femora especially so, yellowish, but with a blackish streak on the outer side of the anterior femora, also the middle part of the hind femora and both sides of all the tibiæ blackish; front femora not ciliate nor noticeably setulose, the flexor surface of the middle femora and tibiæ strongly setulose, of the hind femora less strongly so; several long stiff black bristles bunched at the base of the middle femora, matching a pronounced excision near the tip of the tibiæ; front tibiæ scarcely thickened. Halteres yellowish. Wings subhyaline, a little infumated on the costal half, veins blackish but not clouded, a little paler toward the base, the third and fourth veins converging, the fourth sections of the costa about one-fourth as long as the third section, the crossveins and the space between them all subequal, the outer sections of the fifth vein equal.

A single male collected by Nathan Banks at Ithaca, New York, July 7.

(1) *Tachypeza dolorosa*, nov. sp. — Length 3 mm. Front and occiput gray pruinose, the upper occipital bristles black, the lower ones white; no ocellar bristles; antennæ black, the outer joint ovate, with subterminal arista, which is nearly four times as long as the antennæ; palpi pure white and with white hairs; proboscis black. Mesonotum and humeri except their lower edge opaque pollinose, the usual small humeral, strong notopleural, single pair of posterior dorso-central and two scutellar bristles present; pleuræ shining black except for a thin coating of pollen near the middle coxæ. Abdomen subshining, the hypopygium moderate, its upper lamellæ sparsely hairy, the hairs of the last ventral rather long. Legs black, the inside of the front femora and the base of the tarsi brown, no spottings or peculiar armature in the ♂ except for a slight emargination near the tip of the middle tibiæ and a corresponding pair of setulæ at the base of the middle femora. Halteres white; calypteres with a short fringe of about ten white hairs. Wings long and narrow, smoky except at the base, veins black, the fifth vein dark even at its root, third and fourth veins slightly converging, the third section of the costa three times as long as the fourth, the posterior crossvein about two-thirds the length of the oblique anterior crossvein, the distance between them nearly two times the length of the posterior crossvein, last section of the fifth vein three-fourths the length of the preceding section.

Cloudcroft, New Mexico. This is the species mentioned in the Transactions of the American Entomological Society, vol. 28, p. 343, as *rapax*, occurring in company with *corticalis*. This last species is common in the West. I have seen it from New Mexico, California, Washington, Idaho, Montana, Wyoming and British Columbia.

(2) *Tachypeza binotata*, nov. sp. — Male. Length 3.3 mm. Occiput cinereous, with four black bristles above and numerous white hairs below, the front cinereous, no ocellar bristles; antennæ yellowish, the outer joint oval, the terminal arista nearly four times the length of the antennæ; palpi white and white-hairy; proboscis yellow except the very tip. Mesonotum and humeri opaque cinereous, pleuræ entirely polished black. Abdomen shining piceous black, the hypopygium large, globular, jet-black, its upper appendages nearly bare, the last ventral segment with a loose fringe of long brown hairs. Legs rather robust, including the coxæ largely yellow, the front femora with two large subquadrate black spots below, middle tibiæ tipped with black, the basal two-thirds of the hind femora, the base and apex of the hind tibiæ and much of all the tarsi brown, femora not ciliate and scarcely setulose, the middle femora with a pronounced spine-tipped tubercle at the

Middle femora not tuberculate, legs yellow except for the two femoral spots; wings smoky except base: humeri shining *T. HUMERALIS*, nov. sp. (1).

Geographical distribution.

1. *T. annularis*, nov. sp. California.
2. *T. binotata*, nov. sp. Washington.
3. *T. brachialis*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 343 [1902] E. United States.
(*Tachydromia*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 265 (1903).
4. *T. clavipes*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 86 : Cent. 5, No. 73 North America.
(1864); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 440 [1895]
(*Tachydromia*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 229
[1902] (*Tachydromia*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5,
p. 265 (1903).
5. *T. corticalis*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 343 [1902] W. United States.
(*Tachydromia*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 265 (1903).
? *portacola*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 506 [1849] (*Tachydromia*);
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 440 [1895] (*Tachydromia*);
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 227 [1902] (*Tachydromia*).
6. *T. costalis*, Roser, Correspondenzbl. Landw. Ver. Würtemb. Stuttgart, C. Europe.
Vol. 1, p. 53 [1840] (*Tachydromia*).
7. *T. discifera*, nov. sp. — **Pl. 4, Fig. 31.** W. United States.
8. *T. distans*, nov. sp. Washington.
9. *T. dolorosa*, nov. sp. New Mexico.
10. *T. *egelata*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 89, 98, pl. 4, Baltic Amber.
f. 8-10 [1908] (*Tachydromia*).
11. *T. excisa*, nov. sp. New York.
12. *T. fenestrata*, Say, Journ. Acad. Nat. Sc. Philad. Vol. 3, p. 95 [1823] North America.
(*Sicus*); Wiedemann, Aussereur. Zweifl. Ins. Vol. 2, p. 12 [1830]
(*Tachydromia*); Say, Compl. Writ. Vol. 2, p. 82 [1859] (*Sicus*);
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 440 [1895] (*Tachy-*
dromia); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 228 [1902]
(*Tachydromia*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 265
(1903).
rapax, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 85 : Cent. 5, No. 71 (1864);
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 440 [1905] (*Tachydromia*);
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 229, f. 55 [1902] (*Tachy-*
dromia); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 265 (1903).

base beneath, the end of the middle tibiae slightly but conspicuously excavated. Halteres white, the base of their stems yellowish; calypteres with five white hairs. Wings subhyaline, a little dusky in the middle where the veins are blackish, the fifth vein dark even at its base, the fourth vein parallel with the third except toward its end where it gently curves forward, the third section of the costa three times the length of the fourth section, posterior crossvein shorter than the anterior, the distance between them longer than either, outer sections of the fifth vein subequal.

Two males from Pullman, Washington, July, 1908; another received from M. C. Van Duzee from Sacramento, California, June, 1915.

(1) ***Tachypeza humeralis***, nov. sp. — Male. Length 3 mm. Humeri glistening black, legs yellowish, the front femora marked beneath with two round black spots. Occiput lightly cinereous, except a denser orbital line, occipital hairs sparse, antennae reddish, the terminal brown arista quite four times the length of the antennae, palpi whitish, proboscis reddish brown. Mesonotum lightly dusted, subshining, pleurae polished. Pygidium moderately large, shining black, its hairs sparse. Femora not ciliate, the femoral spots smaller than in *binotata*, front tibiae not incrassate, middle femora not tuberculate, but with three spine-like setulae near base, middle tibiae with a shallow preapical setulose excavation, apex of the hind tibiae indefinitely darker. Halteres pale, calypteres with five pale hairs. Base of the wings whitish, but the first and fifth veins dark to their root, fourth vein slightly convergent toward the third, distance between the crossveins equal to the anterior crossvein.

One specimen, Washington, D. C., August 17, 1913.

- similis*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 506 [1849] (*Tachydromia*);
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 440 [1895] (*Tachydromia*);
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 228 [1902] (*Tachydromia*).
13. *T. fuscipennis*, Fallen, Empid. Suec. p. 14 [1815] (*Tachydromia*); Meigen, Europe.
Syst. Besch. Vol. 3, p. 71 [1822] (*Tachydromia*); Macquart, Dipt.
N. France, Vol. 3, p. 91 [1827] (*Tachydromia*); Curtis, Brit. Ent.
Vol. 8, p. 477 [1833] (*Tachydromia*); Macquart, Hist. Nat. Dipt.
Vol. 1, p. 350 [1834] (*Tachydromia*); Meigen, Syst. Besch. Vol. 7,
p. 95 (1838); Zetterstedt, Fauna Ins. Lappon. p. 546 (1838); Dipt.
Scand. Vol. 1, p. 315 (1842); Boitard, Man. Ent. Vol. 3, p. 322 [1843]
(*Tachydromia*); Gimmerthal, Bul. Soc. Nat. Moscou, Vol. 20 (2),
p. 164 (1847); Walker, List Dipt. Brit. Mus. Vol. 3, p. 506 [1849]
(*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 8, p. 3011 (1849);
Scholz, Zeitsch. Ent. Breslau, Vol. 5 (19), p. 59 (1851); Walker,
Ins. Brit. Dipt. Vol. 1, p. 141 [1851] (*Tachydromia*); Bonsdorff,
Finl. tvâv. Ins. Dipt. Vol. 1, p. 153 (1861); Schiner, Fauna Dipt.
Austr. Vol. 1, p. 93 [1862] (*Tachydromia fuscipennis*); Loew, Zeitschr.
Ent. Breslau, Vol. 17, p. 14 (1864); Lundbeck, Dipt. Dan. Vol. 3,
p. 265 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 88 (1910); Frey,
Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 71 (1913).
14. *T. Heeri*, Zetterstedt, Fauna Ins. Lappon. p. 547 (1838); Dipt. Scand. N. Europe.
Vol. 1, p. 318 (1842); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 10,
note (1864); Siebke, Nyt Mag. Naturvid. Vol. 12, p. 108 (1864);
ibidem, Vol. 14, p. 387 (1866); Wahlgren, Ent. Tidskr. Vol. 31,
p. 88 (1910)
15. *T. humeralis*, nov. sp. E. United States.
16. *T. incisa*, Brunetti, Rec. Indian Mus. Vol. 9, p. 41 [1913] (*Platypalpus*); W. Himalayas.
Fauna Brit. India Dipt. Vol. 1, p. 379 (1920).
17. *T. inusta*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 226, f. 50, 54 W. United States.
[1902] (*Tachydromia*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5,
p. 265 (1903); Tucker, Kansas. Univ. Sc. Bull. Vol. 4, p. 96 [1907]
(*Tachydromia*).
18. *T. nubila*, Meigen, Classif. Besch. Eur. Zweifl. Ins. Vol. 1, p. 239 Europe.
[1804] (*Tachydromia*); Syst. Besch. Vol. 3, p. 71 [1822] (*Tachydromia*);
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Characters. — Minute, slender flies of shining jet-black color and almost devoid of hairs and bristles. Head globular, the occiput hemispherical or conical, its hairs sparse; eyes large, with large facets, those on the upper part a little smaller, broadly contiguous on the face in both sexes; front narrow, its sides straight and nearly parallel, slightly broadening above; three large ocelli, ocellar and vertical bristles minute; cheeks wanting; proboscis shorter than the head, rigid, vertical, not broadened at the base, palpi slender, ribbon-like, in the male sometimes remarkably broadened apically, vertical and applied against the proboscis, whose length they equal or exceed, tipped with one or several bristles; antennæ short two-jointed, the basal joint without setæ, the outer joint rounded oval, with long, slender, nearly bare, terminal or subterminal arista.

Thorax longer than broad, not greatly convex, considerably narrowed from the wings forward; humeri greatly enlarged and constricted by a furrow from the disk of the mesonotum; sometimes a minute humeral bristle present, one notopleural, one postalar on a prominent callus, two or four scutellars, the lateral pair normally small, acrostichal setulæ microscopic, practically absent, dorsocentral setulæ uniseriate, minute, the hindmost longest but not as strong as in *Tachypeza*; no pleural bristles. Pygidium small, more or less globular, or triangular in outline; abdominal segments not pitted laterally. Legs slender, cursorial, the front femora strongest, devoid of bristles but with microscopic hairs, those of underside of front tibiæ serrately arranged, no spurs or spines present: the male of *Tacoma* with the middle legs deformed, but in the other species the males have at most small flexor spines on

the middle femora or tibiae. Wings narrow, anal angle much reduced, costa a little thicker beyond the ending of the first vein, marginal cell usually long, the second vein ending at the outer fifth of the wing, but sometimes (*Phoneutisca*) recurved, the second basal cell surpassing the first usually by two or more times the length of the crossveins, both crossveins small, the posterior transverse, no trace of an anal cell, hind margin rather short-ciliate but sometimes fringed; the wings are usually marked with two dark crossbands leaving a central more or less complete hyaline fascia between them, the base and apex hyaline.

Type species : *T. connexa*, Meigen (Pl. 4, Fig. 29). The application of the name *Tachydromia* has been the subject of considerable dispute, the history of which I have given in *Psyche* (Vol. 17, p. 41-48 [1910]). When Meigen erected the genus *Tachydromia* in 1803 he assigned to it two species, *cursitans* and *cimicoides*, one or the other of which must be selected as its type. In 1827 Macquart formed the genus *Platypalpus* for those species grouped about *cursitans*, and thus, by elimination, *cimicoides* became the type of *Tachydromia*. But Meigen's identification of the Fabrician *cimicoides* was erroneous, and later he described this species as *connexa*. This species was definitely assigned as the type of *Tachydromia* by Coquillett in 1903. According to the established laws of priority there is no reason for rejecting the name *Platypalpus*, although this has been done by the majority of dipterists, apparently on the principle of « follow the leader ». The recently resuscitated name *Coryneta*, Meigen, 1800, has been used by Kertész to replace *Tachydromia* (= *Platypalpus*) in his Catalogus.

Loew's genus *Phoneutisca* was established on *bimaculata*, an Alaskan species with recurved second vein and subterminal arista. I have this species now from British Columbia and Alaska. The male has curiously formed palpi, which slightly surpass the proboscis, the basal half slender and white, the apical half wide and black, deeply and broadly emarginate on the outside. This sex also has the second section of the costa thickened and there is a brown spot somewhat smaller than the stigmal spot beneath where the first vein attains the costa. In as much as other species of *Tachydromia* have the arista subterminal and the second vein recurved (e. g. *eneicator*, Melander, *incompleta*, Becker) and the male of *Tacoma*, which is a true *Tachydromia*, has similarly formed palpi, it is evident that the name *Phoneutisca* can not have even subgeneric standing. It may interest those entomologists who insist on using the name *Tachista* for this group that Loew erected the genus *Phoneutisca* a year before he published *Tachista*.

The species of *Tachydromia* are extremely agile, running about with quick zig-zag movements, on the ground, over stones, boards, grass, etc. They carry the wings flat over the back and rarely make use of them in flight. They are predatory and nimbly chase microdiptera for prey.

NORTH AMERICAN SPECIES OF TACHYDROMIA

1. A pruinose spot on propleuræ above front coxæ, rarely absent; wings with two dark bands which rarely are united in front; the distance between the two crossveins more than twice the length of the hind crossvein 2.
- Crossveins approximated or meeting 13.
2. Second vein abruptly curving or bending forward at apex, the marginal cell obliquely truncated 3.
- Second vein not shortened, the marginal cell rather pointed; palpi and halteres usually pale 5.
3. Male palpi expanded apically into two black lobes, yellow at base 4.
- Male palpi narrow and black; legs black except for tarsi, tibiae not deformed; second vein straight; halteres dark. (Alask., Wyo., Queb.) *T. ENECATOR*, Melander.

4. Second section of costa subequal to third, second vein not sinuous; anterior legs and hind tibiæ brown, the middle tibiæ of male not deformed; stalk of male palpi shorter than proboscis, palpi of female white. (Alask., B. C., Ida., Wyo.) T. BIMACULATA, Loew.
- Second section of costa longer than third, second vein sinuous; legs almost wholly black, the middle tibiæ of male with stout thumb-like process before apex; stalk of male palpi slender and as long as proboscis, palpi of female black. (Wash., Ida.) T. TACOMA, nov. sp. (1).
5. Dark cross-bands of wings united in front. (N. H., W. Va., Col., Ore., Wash.) T. VARIPENNIS, Coquillett.
- Dark cross-bands separated, at least through submarginal cell. 6.
6. Propleuræ polished 7.
- Propleuræ pruinose; wings slender, the marginal hairs short 8.
7. Wings slender, fringe short. (Cal.) T. PSELIOPHORA, nov. sp. (2).
- Wings blunt, fringe longer than crossveins. (Mexico) T. CILIATA, Melander.
8. Hyaline middle band of wings with parallel sides; palpi blackish; occiput polished 9.
- Hyaline band curved or angulate at fourth vein; occiput largely pruinose 11.

(1) *Tachydromia Tacoma*, nov. sp. — Length 3.3 mm. Occiput gray pruinose except below where it becomes shining jet black, its upper bristles black, its lower ones long and white; front glistening black, its sides parallel, ocelli minute; antennæ blackish, the outer joint short ovate, with terminal arista four times the length of the antennæ; palpi of ♂ longer than the proboscis, slender, yellow and tapering on the proximal two-thirds, then suddenly widened, jet black, and with a deep and broad emargination on the outside; palpi of ♀ as long as the proboscis, slender, black and black-hairy; proboscis one-half the height of the head, vertical. Thorax slender, jet black, the humeri prominent; propleuræ and posterior half of the metapleuræ white-pruinose, scutellum and supraalar spot cinereous; humeral bristles wanting, dorsocentral and a single row of acrostichal setulæ minute, two supraalar macrochaetæ, four scutellar bristles. Basal half of the abdominal segments lightly cinereous, apical half jet black; hypopygium small, with long loose black curved hairs. Halteres with white knob; calypteres blackish, fringed with six dusky hairs. Legs jet black, the front coxæ white-pruinose anteriorly and tipped with a bunch of white hairs; front femora robust, pollinose beneath, middle femora ♂ with a series of long bristles on the anterior flexor edge; the middle tibiæ inside with a prominent thumb-like setulose preapical projection and on the extensor side with a setigerous tubercle opposite. Wings with two brown crossbands jointed in the marginal cell, the second vein sinuous, arching forward at the central hyaline fascia and then bending backward so that the marginal cell before its apex is as broad as the submarginal cell, the second section of the costa about one and one-half times as long as the third, the third and fourth veins subparallel, the fourth vein curving forward at the very end of the wing, the distance between the crossveins three times as long as the posterior crossvein, fifth vein nearly straight, terminating at the end of the hyaline fascia, its sections proportioned nearly two to one.

Many specimens from Mount Rainier, Washington, collected by Messrs. Dyar and Caudell and by the author, and one specimen from Moscow Mountain, Idaho. The flies are to be found running over the large boulders in the rivulets and on the rocky cliffs close to the timber-line and have been taken on tents in camp at Paradise Park. The specific name is suggested by the Indian name for the large snow-capped mountain which is the home of these flies.

(2) *Tachydromia pseliophora*, nov. sp. — Male. Length 2.1 mm. Polished black, the upper occiput very thinly pollinose, the pectus above pruinose. Front shining, face obliterated by the contiguity of the eyes; basal joint of antennæ yellow, outer joint brown, short-ovate, palpi blackish, narrow, tipped with a black seta. Abdomen shining, pygidium large, the left valve prominent, curved and finger-like, last ventral segment fringed with long black hairs. Coxæ yellow, front femora yellow becoming brown on distal one-half, front tibiæ thicker than the others and marked with two black rings, front tarsi yellow, the last joint black, middle brownish, the femora paler at base and furnished with two flexor rows of black setulæ, those at the base of the posterior row longest, hind femora and tibiæ blackish, paler at base, the tarsi brownish. Halteres white. Wings elongate oval, marked with two broad smoky bands, veins uniformly brown, middle hyaline stripe angled, costal sections two to four proportioned 5 : 3 : 1, second vein straight to near the gently curving end, first posterior cell narrow, sections of fourth vein 2 : 1 : 4.5, last section of fifth vein curved and separating the dark and light stripes.

Female. Front tibiæ uniformly yellowish brown.

Four specimens, Los Cerrites, California, April 3, 1915, collected by M. C. Van Duzee.

9. Front tibiae of male marked with black tip. 10.
Front tibiae of male with two spots. (Ill., Indiana) T. HARTI, Malloch.
10. Lighter portions of legs pale yellow, the black of male front tibiae
abruptly filling the apical third. (Texas) T. DIVERSIPES, Melander.
Lighter portions of legs testaceous, the black of male front tibiae
forming an oval spot on inner side. (Ont., Virginia) T. PHENGITES, nov. sp. (1).
11. Front legs of male heavily pubescent; palpi black but overlaid with
long silvery hairs; propleuræ polished; dark cross-bands of wings
blackish; legs black; second vein strongly sinuous. (Ore.) T. HIRTIPES, nov. sp. (2).
Legs not heavily pubescent; propleuræ pollinose 12.
12. Second vein somewhat sinuous; palpi black. (Cal., Utah, Ore., Wash.,
Ida.) T. SCHWARZII, Coquillett.
Second vein straight up to its apical curve; palpi white. (Wash.) . . . T. CHELANA, nov. sp. (3).
13. Wings with a single large cloud in anterior apical portion; crossveins
approximated; notum shining. 14.

(1) *Tachydromia phengites*, nov. sp. — Male. Length 1.5 mm. Similar to *Schwarzii*, Coquillett, but the middle hyaline band of the wings forming a straight streak across the wings instead of being curved or angulate at the fourth vein. Mesonotum lightly scabrous, subshining, abdomen polished black. Antennæ brown, the outer joint short oval, with terminal arista. Palpi blackish, slender, in both sexes, with a terminal black bristle; proboscis short, blackish. A large white pruinose spot above the front coxæ. Knobs of the halteres white. Legs brownish yellow, the hind femora and tibiae, except basally, black, front coxæ and upper side of front femora dark, last tarsal joint black, front tibiae of male tipped within with a round black spot. Wings marked with two broad brown crossbands, leaving the base, middle and tip hyaline; the second section of the costa two and one-half times the third section which is three times as long as the fourth section, second vein very gently curved and not arched, posterior crossvein shorter than the anterior, the distance between them twice the length of the posterior crossvein. In *Schwarzii* it is more than twice. Last section of the fifth vein ending in the middle of the hyaline band.

Five specimens, Falls Church, Virginia, received from Nathan Banks, and Ridgeway, Ontario, received from M. C. Van Duzee. The species is a close relative of *T. Harti*, which has two black spots on the front side of the front tibiae of the male.

(2) *Tachydromia hirtipes*, nov. sp. — Male. Length 3 mm. Shining black, the abdomen dull. Occiput and front pollinose, only the chin polished; antennæ piceous, the outer joint oval with the arista almost terminal and six times length of the joint; palpi narrow, black, nearly as long as the proboscis, overlaid with long silvery hairs and tipped with a black seta. Thorax smooth, jet-black, only the pectus and a spot above hind coxæ pruinose. Abdomen piceous, the genitalia black, asymmetrical, consisting of three narrow, curving valves, last ventral fringed with black hairs. Legs black, the front coxæ, the knees and the hind metatarsi piceous, front femora very robust, marked with a translucent spot near middle of inner side, front legs covered with abundant brown fine hairs, middle femora with a small brush of setæ at base beneath, middle tibiae with a shallow emargination just before tip on flexor side. Knob of halteres white. Wings with arched costa, the base, middle and apex narrowly hyaline, the intermediate areas forming two broad deeply fuliginous cross-bands, second vein sinuous, the marginal cell narrowest at the hyaline middle band, second section of costa more than two times third, anterior crossvein at two-thirds length of discal cell, sections of fifth vein 2:1, the last section forming a sharp boundary to the proximal dark band, the middle hyaline band therefore angulate at the fourth vein.

Female, first four segments of abdomen subshining; legs not conspicuously pubescent, the front femora lacking the translucent spot and the middle legs lacking the basal brush and apical emargination.

Eight males and five females, all collected on rocks in the mountain stream near Viento, Oregon, July 1, 1917, and Aug. 1, 1921.

(3) *Tachydromia chelana*, nov. sp. — Female. Length 2.5 mm. Polished black, the upper occiput lightly pruinose, pruinosity of pectus reaching back to forward portion of the propleura. Antennæ piceous, arista subterminal and five times length of last antennal joint; palpi two-thirds length of proboscis, ribbon-like, white, the hairs microscopic, no apical seta. Mesonotum smoothly polished; two pairs of scutellar bristles. Coxæ and metatarsi yellowish, remainder of legs blackish, the hind pair darkest. Halteres with white knob and blackish root. Wings narrow, bifasciate with blackish, leaving the base, middle and apex hyaline, the outer dark band encroaching proximally in the first posterior cell, first and second veins ending at outer edges of respective dark bands, the second vein straight through its course up to its apical gentle curvature, distance between crossveins three and one-half times the length of posterior crossvein, last section of fifth vein two-thirds the preceding, ending at beginning of outer dark band.

Two specimens, Stehekin, at the head of Lake Chelan, Washington, July 30, 1919 (Melander).

Wings with two crossbands; crossveins meeting; notum dull; palpi

bearing a very long seta; humeri yellow. T. SACHEM, nov. sp. (1).

14. Wholly black; propleuræ pollinose. (Wash.). T. MONACHA, nov. sp. (2).

Legs, halteres and veins at base of wings in part paler; propleuræ

polished. (Canada, Mass., Vt., N. Y., N. J., Md., Fla., Ill., Wisc.,

Mo., S. D.). T. MACULIPENNIS, Walker.

Geographical distribution.

1. *T. æmula*, Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 22 (1864). C. Europe.
2. *T. aliterpicta*, Becker, Berl. Ent. Zeitschr., Vol. 33, p. 343 [1889] (*Tachista* S. Europe.
alteropicta); Acta Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 32
[1900] (*Tachista*).
3. *T. annulimana*, Meigen, Syst. Besch. Vol. 3, p. 69 (1822); Curtis, Brit. Europe.
Ent. Vol. 8, p. 477 (1833); Meigen, Syst. Besch. Vol. 7, p. 95
(1838); Schiner, Fauna Dipt. Austr. Vol. 1, p. 93 (1862); Loew,
Zeitschr. Ent. Breslau, Vol. 17, p. 28 [1864] (*Tachista*); Strobl,
Progr. Seitenst. Vol. 14, p. 57 (1880); Lundbeck, Dipt. Dan. Vol. 3,
p. 269 [1910] (*Tachista*); Melander, Psyche, Vol. 17, pl. 3, f. 12
(1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 89 (1910); Frey, Acta
Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 75 [1913] (*Tachista*).
albitarsis, Zetterstedt, Dipt. Scand. Vol. 3, p. 313 [1842] (*Tachypeza*); ibidem,
Vol. 8, p. 3011 [1849] (*Tachypeza*); Pipping, Not. Sällsk. Fenn. Förh.
Helsingfors, Vol. 4, p. 114 [1858] (*Tachypeza*); Nylander, ibidem, p. 247
[1858] (*Tachypeza*); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 153 [1861]
(*Tachypeza*); Siebke, Cat. Dipt. Norv. p. 24 [1877] (*Tachypeza*).
arrogans, Zetterstedt (not Linnæus), Fauna Ins. Lappon. p. 546, var. *d* [1838]
(*Tachypeza*).
cinicoides, Walker (not Fabricius), List Dipt. Brit. Mus. Vol. 3, p. 506 (1849).
umbrarum, Haliday, Ent. Mag. London, Vol. 1, p. 161 [1833] (*Tachypeza*).
4. *T. arrogans*, Linnæus, Fauna Suec. p. 457 [1761] (*Musca*); Syst. Nat. Europe.
(ed. 12), Vol. 2, p. 995 [1767] (*Musca*); Fabricius, Syst. Ent. p. 783
[1775] (*Musca*); Schrank, Enum. Ins. Austr. p. 467 [1781] (*Musca*);
Fabricius, Spec. Ins. Vol. 2, p. 448 [1781] (*Musca*); Mant. Ins.
Vol. 2, p. 349 [1787] (*Musca*); Gmelin, Syst. Nat. Vol. 5, p. 2852
[1790] (*Musca*); Fabricius, Ent. Syst. Vol. 4, p. 341 [1874] (*Musca*);
?Syst. Ant. p. 263 [1805] (*Calobata*); Olivier, Encycl. Méth. Vol. 8,

(1) ***Tachydromia sachem***, nov. sp. — Female. Length 1.3 mm. Head black, occiput cinereous dusted, front dull black, narrow, sides bulging around the ocelli, the eyes closer together on vertex than above antennæ, upper facets enlarged, face obliterated; occipital setæ flat, scale-like, white; basal antennal joint whitish yellow, outer joint short oval, dusky, arista nearly four times the antennal length; proboscis yellow, tipped with brown, palpi small, circular, brown, bearing an extraordinary black seta which is nearly twice as long as the proboscis. Thorax dull in color, humeri very large and yellowish, remainder of thorax piceous, pleuræ lightly cinereous, propleuræ shining, one strong pair each of notopleuræ, dorsocentral and scutellar bristles. Abdomen dull piceous, a little paler at base and apex, its sparse short hairs black. Coxæ and most of anterior legs yellow, last two joints of anterior tarsi black, hind femora yellow on basal third, remainder black, hind tibiæ white, the distal third black, first two joints of hind tarsi white, the last three black, hind metatarsus as long as remaining joints together. Wings narrow, infumated, the base, apex and a central spot included between the third and fifth veins hyaline, crossveins meeting, third and fourth veins nearly parallel, sections of fifth vein subequal; halteres pale yellow.

A single specimen of this remarkable fly received from Pablo Schild, Turrialba, Costa Rica, November, 1922. The species departs from the others in *Tachydromia* in having the thorax dull and the crossveins attingent.

(2) ***Tachydromia monacha***, nov. sp. — Female. Length 2 mm. Related to *maculipennis*, Walker, but entirely black, including the root of the wings, the pedicel of the halteres and the base of the legs. Wings broader, the blackish anterior cloud which stops along the middle of the first posterior cell coming exactly to the middle of the wing, — in *maculipennis* the middle of the wing is a little closer to the third vein; the white pruinose spot above the front coxæ extending on the propleuræ, — in *maculipennis* it fills the pectus only. The wings, aside from the blackish cloud, are decidedly smoky, and not subhyaline as in *maculipennis*.

One specimen, Pullman, Washington, May 30, 1913.

- p. 29 [1811] (*Musca*); Fallen, Empid. Suec. p. 13 (1815); Billberg, Enumer. Ins. p. 119 [1820] (*Sicus*); Meigen, Syst. Besch. Vol. 3, p. 68 (1822); Macquart, Dipt. N. France, Vol. 3, p. 90 (1827); Curtis, Brit. Ent. Vol. 8, p. 477, pl. (1833); Macquart, Hist. Nat. Dipt. Vol. 1, p. 349 (1834); Guérin, Icon. Règne Anim. Ins. p. 537, pl. 94, f. 8 (1835); Meigen, Syst. Besch. Vol. 7, p. 94 [1838] (*Tachypeza*); Zetterstedt, Fauna Ins. Lappon. p. 546, part [1838] (*Tachypeza*); Dipt. Scand. Vol. 1, p. 312 [1842] (*Tachypeza*); ibidem, Vol. 8, p. 3010 [1849] (*Tachypeza*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 59 [1851] (*Tachypeza*); Walker, Ins. Brit. p. 1139, pl. 5, f. 6 (1851); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 153 [1861] (*Tachypeza*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 93 (1862); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 20 [1864] (*Tachista*); Giard, Traité Ent. Vol. 3, p. 992, pl. 108, f. 8 (1885); Neuhaus, Dipt. March. p. 74 (1886); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 124 [1892] (*Tachista*); Lundbeck, Dipt. Dan. Vol. 3, p. 267, f. 122 [1910] (*Tachista*); Melander, Psyche, Vol. 17, pl. 3, f. 10 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 89, f. 17 [1910] (*Tachista*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 73 [1913] (*Tachista*).
- bifasciata*, Rossi, Fauna Etrusc. Vol. 2, p. 77 [1794] (*Empis*); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 152 [1899] (*Tachista*).
- cimicoides*, Fabricius, Spec. Ins. Vol. 2, p. 447 [1781] (*Musca*); Mant. Ins. Vol. 2, p. 349 [1787] (*Musca*); Gmelin, Syst. Nat. Vol. 5, p. 2852 [1790] (*Musca*); Fabricius, Ent. Syst. Vol. 4, p. 339 [1794] (*Musca*); Latreille, Hist. Nat. Crust. Ins. Vol. 14, p. 312 [1804] (*Sicus*); Fabricius, Syst. Antl. p. 144 (1805); Olivier, Encyclop. Méthod. Vol. 8, p. 30 [1811] (*Musca*); Lamarck, Hist. Nat. Anim. sans Vert. Vol. 3, p. 402 [1816] (*Empis*); Billberg, Enumer. Ins. p. 119 [1820] (*Sicus*); Macquart, Mém. Soc. Sc. Lille, 1823, p. 115 (1823); Boitard, Man. Ent. Vol. 2, p. 369 [1828] (*Sicus*); Meigen, Syst. Besch. Vol. 6, p. 341 (1830); Macquart, Hist. Nat. Dipt. Vol. 1, p. 349 (1834); Meigen, Syst. Besch. Vol. 7, p. 94 [1838] (*Tachypeza*); Boitard, Man. Ent. Vol. 3, p. 322 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 140 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 93 (1862).
- var. *productipes*, Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 46, p. 85 [1909] (*Tachysta*) C. Europe.
5. *T. barbata*, Oldenberg, Zool. Jahrb. Vol. 43, Syst. p. 230, f. c, d [1920] Alps.
(*Tachista*).
6. *T. bimaculata*, Loew, Berl. Ent. Zeitschr. Vol. 7, p. 19 : Cent. 3, No. 35 [1863] (*Phoneutisca*); Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 423 [1900] (*Phoneutisca*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 204, part [1902] (*Phoneutisca*); Psyche, Vol. 17, p. 52 [1910] (*Phoneutisca*).
maculipennis, Coquillett, 1903 (not Walker). Proc. Ent. Soc. Wash. Vol. 5, p. 266 (1903).
7. *T. bistigma*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 490 [1912] (*Tachista*); Suppl. Ent. Berlin, Vol. 3, p. 78 [1914] (*Tachista*). Formosa.
8. *T. calcanea*, Meigen, Syst. Besch., Vol. 7, p. 95 [1838] (*Tachypeza*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 59 [1851] (*Tachypeza*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 93 (1862); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 126 [1893] (*Tachysta*); Melander, Psyche, Vol. 17, pl. 3, f. 6 (1910); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 46, 85 [1910] (*Tachysta*).
longipennis, Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 29 [1864] (*Tachista*).
9. *T. calcarata*, Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 46, p. 85 [1909] (*Tachysta*). C. Europe.
10. *T. catalonica*, Strobl, Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 319 [1906] Spain.
(*Tachysta*); Kertész, Cat. Dipt. Vol. 6, p. 151 [1909] (*Coryneta*).
var. *striatipennis*, Strobl, Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 320 [1906] Spain.
(*Tachysta*); Kertész, Cat. Dipt. Vol. 6, p. 131 [1909] (*Coryneta*).

11. *T. chelana*, nov. sp. Washington.
12. *T. ciliata*, Melander, Psyche, Vol. 17, p. 55, f. 13 (1910). Mexico.
Schwarzii, Wheeler & Melander (not Coquillett), Biol. Cent. Amer. Dipt. Vol. 1, p. 375 (1901); Melander, Trans. Ent. Soc. Vol. 28, p. 225, part (1902).
13. *T. connexa*, Meigen, Syst. Besch. Vol. 3, p. 70, pl. 23, f. 24 (1822); Europe, East Indies.
 Macquart, Dipt. N. France, Vol. 3, p. 91, pl. 2, f. 3 (1827); Curtis, Brit. Ent. Vol. 8, p. 477 (1833); Macquart, Hist. Nat. Dipt. Vol. 1, p. 350, pl. 8, f. 9 (1834); Meigen, Syst. Besch. Vol. 7, p. 95 [1838] (*Tachypeza*); Boitard, Man. Ent. Vol. 3, p. 322 (1843); Scholz, Zeit. Ent. Breslau, Vol. 5 (19), p. 59 [1851] (*Tachypeza*); Walker, Ins. Brit. Dipt. Vol. 1, p. 140 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 93 (1862); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 23 [1864] (*Tachista*); Neuhaus, Dipt. March. p. 74 (1886); Leunis, Synops. Zool. Vol. 2, p. 401 (1886); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 123 [1892] (*Tachysta*); Melander, Psyche, Vol. 17, pl. 3, f. 7 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 88 [1910] (*Tachista*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 72 [1913] (*Tachista*); Bezzi, Suppl. Ent. Berlin, Vol. 3, p. 78 (1914). —
Pl. 4, Fig. 29.
cimicoides, Meigen (not Fabricius), Klassif. Besch. Eur. Zweifl. Ins. Vol. 1, p. 239 (1804).
morio, Zetterstedt, Fauna Ins. Lappon. p. 546 [1838] (*Tachypeza*); Dipt. Scand. Vol. 1, p. 314 [1842] (*Tachypeza*); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 153 [1851] (*Tachypeza*); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 125 [1892] (*Tachysta*).
14. *T. denticulata*, Oldenberg, Ent. Mitteil. Berlin, Vol. 1, p. 212, f. 1, 2 Alps.
 [1912] (*Tachista*)
15. *T. diversipes*, Melander, Psyche, Vol. 17, p. 55 [1910] (*Schwarzii*, var. *diversipes*). Texas.
16. *T. enecator*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 226 (1902); Alaska, Quebec.
 Melander, Psyche, Vol. 17, p. 54, f. 1, 4 (1910).
17. *T. excisa*, Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 27 [1864] (*Tachista*). C. Europe.
18. *T. fuscinervis*, Frey, Mém. Acad. Sc. Russ. Vol. 29 (10), p. 15 [1915] Arctic Siberia.
 (*Tachista*).
19. *T. Harti*, Malloch, Canad. Ent. Vol. 51, p. 248 (1919). Illinois, Indiana.
20. *T. hirtipes*, nov. sp. Oregon.
21. *T. incompleta*, Becker, Act. Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 33. Siberia.
 pl. 2, f. 33 [1900] (*Tachista*).
22. *T. interrupta*, Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 19 [1864] (*Tachysta*); C. & S. Europe.
 Mik. in Beck, Fauna Hernstein, Vol. 2, p. 2 [1885] (*Tachista*); Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 34, p. 213 [1898] (*Tachysta*); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 161 [1899] (*Tachista*); Melander, Psyche, Vol. 17, pl. 3, f. 9 (1910).
 var. *obsoleta*, Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 46, p. 85 [1909] C. Europe.
 (*Tachysta*).
styriaca, Strobl, ibidem, Vol. 29, p. 124, var. *d* [1892] (*Tachysta*).
23. *T. latifascipennis*, Brunetti, Rec. Indian Mus. Vol. 13, p. 81 (1917); India.
 Fauna Brit. India Dipt. Vol. 1, p. 375 (1920).
24. *T. Lundströmi*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 73, Finland.
 f. 20 [1913] (*Tachista*).
25. *T. maculipennis*, Walker, List. Dipt. Brit. Mus. Vol. 3, p. 507 (1849); North America.
 Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 440 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 228 (1902); Melander, Psyche, Vol. 17, p. 52, 57, f. 3, 5 (1910).
bimaculata, Melander (not Loew), Trans. Amer. Ent. Soc. Vol. 28, p. 204, part, f. 1 [1902] (*Phoneutisca*).

- pusilla*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 87: Cent. 5, No. 74 [1864] (*Tachypeza*); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 439 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 229, f. 51 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 265 (1903).
26. *T. microptera*, Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 26 [1864] C. Europe.
(*Tachista*).
? *brevipennis*, Roser, Correspondenzbl. Landw. Ver. Würtemb. Stuttgart, Vol. 1, p. 53 [1840] (*Tachypeza*).
27. *T. minima*, Becker, Act. Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 32 Siberia.
[1900] (*Tachista*).
28. *T. monacha*, nov. sp. Washington.
29. *T. monserratisensis*, Strobl, Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 318 [1906] Spain.
(*Tachista*); Kertész, Cat. Dipt. Vol. 6, p. 162 [1909] (*Coryneta*).
30. *T. ? morio*, Walker (not Zetterstedt), Ins. Brit. Dipt. Vol. 1, p. 141 (1851). Britain.
31. *T. nigerrima*, Bezzi, Ditterofaun. nivale, p. 112, pl. 1, f. 2, 8 [1918] Alps.
(*Tachista*).
32. *T. ornatipes*, Becker, Wien. Ent. Zeit. Vol. 9, p. 69, f. 1, 2 [1890] S. Europe.
(*Tachista*); Oldenberg, Zool. Jahrb. Vol. 43, Syst. p. 227, f. a, b [1920] (*Tachysta*).
33. *T. phengites*, nov. sp. Virginia.
34. *T. pseliophora*, nov. sp. California.
35. *T. punctifera*, Becker, Act. Soc. Sc. Fenn. Helsingfors, Vol. 26 (9), p. 32, Siberia, Finland.
pl. 2, f. 32 [1900] (*Tachista*); Frey, Act. Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 72 [1913] (*Tachista*).
maculipennis, Frey (not Walker), Naturw. Untersuch. Sarekgebirg, Vol. 4 (6, p. 687 [1916] (*Tachista*).
36. *T. sabulosa*, Meigen, Syst. Besch. Vol. 6, p. 342 (1830); ibidem, Vol. 7, C. & N. Europe.
p. 95 [1838] (*Tachypeza*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 59 [1851] (*Tachypeza*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 93 (1862); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 17 [1864] (*Tachista*); Lundbeck, Dipt. Dan. Vol. 3, p. 270 [1910] (*Tachista*); Frey, Act. Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 72 [1913] (*Tachista*).
fenestrata, Zetterstedt, Dipt. Scand. Vol. 1, p. 318 [1842] (*Tachypeza*).
37. *T. sacheu*, nov. sp. Costa Rica.
38. *T. Schwarzii*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 440 (1895); North America.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 225, part, f. 52 (1902); Slosson, Ent. News, Philad. Vol. 14, p. 267 (1903); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 460 [1905] (*Tachypeza*); Melander, Psyche, Vol. 17, p. 54, f. 14 (1910).
39. *T. ? stilpon*, Meunier, Loew, Bernsteinfauna, p. 42, part (1850); Miscell. Baltic Amber.
Ent. Vol. 7, p. 178 (1899).
40. *T. styriaca*, Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 124 C. Europe.
[1892] (*Tachista*); Melander, Psyche, Vol. 17, pl. 3, f. 8 (1910).
semifasciata, Strobl, Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 125 [1892] (*Tachista*).
41. *T. Tacoma*, nov. sp. Washington.
42. *T. terricola*, Zetterstedt, Vet. Akad. Handl. Stockholm, Vol. 1, p. 81 (1819); C. & N. Europe.
Meigen, Syst. Besch. Vol. 3, p. 72 (1822); Fallen, Dipt. Suec. Suppl. p. 6 (1826); Meigen, Syst. Besch. Vol. 6, p. 341 (1830); ibidem, Vol. 7, p. 95 [1838] (*Tachypeza*); Zetterstedt, Dipt. Scand. Vol. 1, p. 320 [1842] (*Tachypeza*); ibidem, Vol. 8, p. 3011 [1849] (*Tachypeza*); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 17 [1864] (*Tachista*); Lundbeck, Dipt. Danica, Vol. 3, p. 271 [1910] (*Tachista*);

Wahlgren, Ent. Tidskr. Vol. 31, p. 88 [1910] (*Tachista*); Frey, Act. Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 72 [1913] (*Tachista*)

apicata, Stæger, in litt., Zetterstedt, Dipt. Scand. Vol. 8, p. 3011 [1849] (*Tachypeza*).

43. *T. tuberculata*, Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 25 [1864] C. Europe.
(*Tachista*); Verrall, Ent. Mag. London, Vol. 48, p. 26 [1912] (*Tachista*).
44. *T. undulata*, Strobl, Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 317 [1906] Spain.
(*Tachysta*); Kertész, Cat. Dipt. Vol. 6, p. 168 [1909] (*Coryneta*);
Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 182 [1909] (*Tachysta*).
45. *T. varipennis*, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 266 (1903); United States.
Slosson, Ent. News, Philad. Vol. 14, p. 267 (1903); Melander,
Psyche, Vol. 17, p. 56, f. 11 (1910).

3. GENUS PIELTAINIA, ARIAS

Pieltainia, Arias, Bol. Soc. Esp. Hist. Nat. Vol. 19, p. 479 (1919).

Characters. — Entirely dull black, measuring less than three millimeters, the tarsi and sometimes the knees alone paler. Proboscis vertical, palpi narrow; antennæ porrect, the apical joint acuminate and with terminal arista; eyes large, occupying the whole side of the head. Legs simple in both sexes, slender, cursorial, the front femora slightly the largest. Male abdomen with blunt termination, female abdomen pointed. Wings and halteres entirely wanting.

Genotype : *P. iberica*, Arias. This is the only Empid known that is entirely wingless. In several of the genera of this subfamily there is a tendency toward rudimentary wings, in some cases a concomitant or possibly the reaction of the specialized cursorial habit, in other cases, e. g. the maritime species, the result of persistent winds making flying dangerous. Even the coastal and cascadel species with functional wings are loathe to fly. The present species was found in early spring actively running about in pursuit of *Sciaras* and other microscopic Diptera on which it preyed.

Geographical distribution.

1. *P. iberica*, Arias, Bol. Soc. Esp. Hist. Nat. Vol. 19, p. 479, l. 1 a & 2 a Spain.
(1919).

4. GENUS DYSALETRIA, LOEW

Dysaletria, Loew, Zeitschr. Ent. Breslau, Vol. 14, p. 7 (1860); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 124 (1889); Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 43 (1902); Coquillett, Proc. Wash. Ent. Soc. Vol. 5, p. 249 (1903); Kertész, Cat. Dipt. Vol. 6, p. 143 (1909); Melander, Psyche, Vol. 17, p. 49 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 45 (1910).

Characters. — Small yellow species with black head. Head globose, proboscis short; antennæ small, the third joint oval, with a slender apical arista. Thorax subopaque, with short pubescence. Legs slender, the anterior femora but slightly thickened, last joint of the hind tarsi somewhat widened. Wings narrow, the anal angle much reduced, basal cells long and equal, the crossveins near the middle of the wing, third and fourth veins parallel and close together, ending at the wing-tip, anal cell wanting, or only the outer angle visible.

Type species : *D. atriceps*, Boheman.

Geographical distribution.

1. *D. atriceps*, Boheman, Vet. Akad. Förh. Stockholm, 1851, p. 190 [1852] C. & N. Europe.
(Tachypeza); Zetterstedt, Dipt. Scand. Vol. 12, p. 4603 [1855]
(Tachypeza); Roeder, Wien. Ent. Zeit. Vol. 3, p. 291 (1884);
Wahlgren, Ent. Tidskr. Vol. 31, p. 89, f. 18 (1910).
melanocephala, Loew, Zeit. Ent. Breslau, Vol. 17, p. 31 (1863).
2. *D. ? * diabolica*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 89, 100, pl. 5, Baltic Amber.
f. 3, 4 [1908] (*Elaphropeza*).

5. GENUS TACHYEMPIS, NOV. GEN.

Characters. — Very small species, less than two millimeters in size, usually cinereous pollinose on the pleuræ as well as on the notum. Occiput flattened, without bristles; front broadly V-shaped, its sides outwardly bowed; ocelli variable in size, one pair of diverging ocellar bristles and usually in front of them a pair of minute convergent setulæ; one pair of vertical bristles, all the bristles small. Eyes contiguous below the antennæ obliterating the face and cheeks, bare, the lower facets large, the emargination at the antennæ deep. Antennæ short, two-jointed, without a seta beneath, the last joint oval, with subterminal arista. Proboscis very short, vertical, the palpi variable in width, but typically oval, densely hairy and white. Thoracic bristles variable, a double row of acrostichals may be present or absent, one humeral, two notopleural, two or four scutellar bristles. Abdomen comprising seven segments and the rather large pygidium, the segments usually with evident lateral pits. Legs simple, not enlarged, short-pubescent, no spines, spurs or bristles on the tibiæ, last tarsal joint and the pulvilli small; the front femora are a little the stoutest. Wings hyaline or nearly so, the costa not fringed; basal cells short, the posterior crossvein near the basal third of the wing but beyond the anterior crossvein, second and third sections of the costa nearly equal.

Type species: *T. agens*, Melander.

The following North American species make a natural group with the exception of *calva* and *simplicior*, which are aberrant in any of the genera. These species all possess pittings at the lateral margins of the tergites of the abdomen and are more or less pollinose. Two African species with clear wings, described by Dr. Bezzi as *Tachista*, appear to belong here.

KEY TO THE AMERICAN SPECIES OF TACHYEMPIS

1. Disk of mesonotum polished, devoid of all dust; humeri prominent 2.
- Thorax and abdomen subglaucous, the disk more or less dusted; humeri generally smaller. 6.
2. Legs largely or wholly black; front of male fulvous-pollinose between antennæ and front ocellus; base of pygidial hook with two strong bristles on right side *T. NIGRA*, nov. sp. (1).

(1) ***Tachyempis nigra***, nov. sp. — Male. Length 1.5 mm. Black, vertex and disk of thorax polished. Ocelli small, front fulvous-pollinose between antennæ and front ocellus, entire occiput with dark brown coating, one pair each of black vertical and ocellar bristles; basal joint of antennæ yellow to reddish, outer joint black, the subdorsal arista black, two and a half times the antennal length; palpi broad, glistening white, with a few yellow setæ. Mesonotum nearly bare, about three minute acrostichal and seven dorsocentral hairs, notopleural suture, scutellar area and pleuræ densely velvety dark brown pollinose, becoming silvery toward and on coxæ, one notopleural, one supra-alar and one pair scutellar black

- Legs in large part yellow; front polished; pygidium without specialized bristles 3.
3. Third and fourth veins subparallel 4.
- Third vein curving forward, diverging from the fourth. . . . T. SIMPLICIOR, Wheeler & Melander.
4. Occiput coated with dust; wings nearly uniformly infumated; front tibiæ darker than femora 5.
- A broad orbital stripe polished; base of wings pale, remainder infumated; front tibiæ and femora concolorous T. GAGATINA, nov. sp. (1).
5. Front tibiæ black; fourth vein ending at wing-tip. . . . T. CAPNODES, nov. sp. (2).
- Front tibiæ piceous; fourth vein ending beyond wing-tip . . T. SCHILDI, nov. sp. (3).
6. Hind metatarsi with a long black spine; palpi broad; legs yellow T. LONGISPINA, nov. sp. (4).
- No metatarsal spine 7.

bristles. Abdomen overlaid with dark brown pollen, pygidium contorted and usually open, the curved apical process slender and bearing two strong black setæ at base on right side. Legs blackish, the tibiæ and base of tarsi brown, coxal hairs yellow, other hairs brown. Halteres yellow, calypteres and fringe dusky. Wings smoky, especially dark in marginal and submarginal cells, veins black and strong, sections of costa proportioned 10 : 11 : 9 : 3, third and fourth veins parallel toward end, the fourth ending beyond wing-tip, first basal cell two-thirds as long as second, sections of fifth vein 7 : 10.

Female. Antennal joints concolorous, dark; front wholly polished.

Twenty-four specimens, procured from Pablo Schild, La Suiza de Turrialba, Costa Rica, collected in various months; two specimens, San Jose, Costa Rica (Sturtevant). The legs may sometimes be more or less brownish.

(1) **Tachyempis gagatina**, nov. sp. — Differs from *capnodes* as follows: occiput broadly polished along the orbits, the first antennal joint of male yellowish, the apical joint brown, of female both joints black, arista two and a quarter times antennal length. The gray tone to the pruinosity of lower pleuræ and coxæ scarcely evident; pygidium short, small, closed, hairy, the terminal curved process thin and devoid of specialized bristles; legs mostly testaceous yellow, the front tibiæ not darker than their femora, the hind femora only a little brownish on apical half. Base of wings subhyaline, remainder uniformly infumated, costal sections about 0.6 : 1 : 0.6 : 0.3, first posterior cell about three-fourths as wide as the submarginal opposite the end of the second vein, fourth vein ending beyond wing-tip, sections of fifth vein 2 : 3.

Six males, one female, La Suiza de Turrialba, Costa Rica (P. Schild).

(2) **Tachyempis capnodes**, nov. sp. — Female. Length 1.5 mm. Occiput opaque black, only a linear orbital stripe shining, front polished, at the vertex as wide as antennal length, below as wide as the outer antennal joint, the single ocellar and vertical bristles black; palpi glistening white, with a white seta, proboscis black; antennæ black, the subdorsal arista two and a half times the antennal length. Mesonotum polished, extreme margins of notum and all of pleuræ pollinose, black, becoming silvery gray toward and on posterior coxæ. Abdomen subopaque black. Legs very sturdy, entirely bristleless, brownish yellow, front coxæ black at base merging to the yellow tip, touched with gray pruinosity on front face, front tibiæ entirely black, hind femora blackish on apical third. Halteres with yellow stem and white knob. Wings strongly and uniformly infumated, sections of costa beyond humeral crossvein proportioned 1 : 1 : 0.6 : 0.3, first posterior cell relatively narrow, about two-thirds as wide as the submarginal opposite end of second vein, fourth vein gently curving forward, ending at wing-tip, sections of fifth vein about 4 : 5.

Holotype, La Suiza de Turrialba, Costa Rica, August, 1922 (P. Schild).

(3) **Tachyempis Schildi**, nov. sp. — Differs from *capnodes* as follows: Occiput dusted up to the eyes; arista nearly three times the antennal length, basal antennal joint of male yellow, the outer joint black, of female the antennæ wholly black; gray pruinosity of lower pleuræ and of coxæ scarcely evident; pygidium open, the curved terminal process without specialized bristles; front femora less robust, front tibiæ piceous, becoming paler at apex; costal sections proportioned 10 : 11 : 7 : 3, first posterior cell about three-fourths as wide as the submarginal opposite end of second vein, the fourth vein ending beyond apex of wing, sections of fifth vein 3 : 4.

One male and one female, La Suiza de Turrialba, Costa Rica, procured from Pablo Schild. The species is dedicated to Mr. Schild, whose diligent collecting has made possible the recording of seven of the new species of the genus.

(4) **Tachyempis longispina**, nov. sp. — Length 1 mm. Uniformly cinereous gray, the legs yellow, hind metatarsi with a long black spine, wings hyaline. Front narrowly V-shaped, ocelli moderate in size; no ocellar bristles; antennæ reddish, the outer joint short oval, the terminal arista nearly four times the length of the antennæ. Palpi broad, white, not fringed; proboscis short and vertical, black. Occipital hairs white, sparse. Thorax not elongate, the humeri evident but not markedly constricted; only a few microscopic bristles present on the notum before the scutellum; four minute scutellar bristles. Hypopygial claspers fringed with hairs beneath. Legs including the coxæ yellow, the hind femora brownish toward tip, hairs sparse, minute and white, but the hind metatarsi of the male tipped with a slender black

7. Second section of costa longer than third, usually one and one-half to two times the third 8.
 Second and third sections of costa subequal, or the second shorter than the third 12.
 8. Front almost linear above and below the ocellar triangle; wings more or less clouded; femora apically and front tibiae centrally dark *T. PICTIPES*, nov. sp. (1).
 Front more or less V-shaped 9.
 9. Upper half of front polished, lower half gray pollinose; palpi longer than broad, white; sections of fifth vein equal *T. CINEREA*, nov. sp. (2).
 Upper part of front dusted quite as much as lower 10.
 10. Sections of fifth vein equal, veins mostly strong and black; palpi longer than wide *T. NERVOSA*, nov. sp. (3).
 Last section of fifth vein longer than preceding, veins thin; palpi nearly as broad as long 11.

spine which is as long as the metatarsus and attains the end of the following joint. Halteres white; calypteres bare. Wings nearly hyaline, slightly clouded near the middle, the second and third sections of the costa subequal, third and fourth veins parallel, last section of the fifth vein slightly longer than the preceding section, posterior crossvein two-thirds as long as the distance between the crossveins.

Five specimens, Havana, Cuba (C. F. Baker), and Jamaica (R. Thaxter).

(1) *Tachysmpis plectipes*, nov. sp. (Pl. 4, Fig. 35). — Length 2 mm. Black, with brownish tinge. Head very narrow, higher than wide, occiput lightly but completely gray-dusted, its lower hairs pale; front cinereous, almost linear, bulged at the very narrow ocellar triangle, vertical bristles almost touching; antennae yellowish, the arista three and a half times the antennal length; palpi narrow and long, white, tipped with a long yellow seta, proboscis black. Thorax narrow, uniformly and lightly dusted with grayish, one each of humeral, notopleural, dorsocentral and supra-alar bristles, apical scutellars distant. Abdomen dull brown, the recurved apical process narrow. Front femora robust, fringed with long yellow setae beneath, coxae and most of legs yellow, the middle of the anterior tibiae and the distal part of the posterior femora brown. Wings narrow, hyaline at base, otherwise lightly infumated, veins brown, sections of costa proportioned 9 : 10 : 7 : 3, of fifth vein 4 : 5, first posterior cell narrow, ending at apex of wing, but little narrower than the submarginal opposite end of second vein. Halteres pale yellow, calypteres brown.

Seven males, three females, La Suiza de Turrialba, Costa Rica (P. Schild).

(2) *Tachysmpis cinerea*, nov. sp. — Female. Length 1.5 mm. Occiput, thorax and abdomen gray pruinose; legs yellowish; basal joint of the antennae red; palpi elongate, white and with small white hairs; two scutellar bristles; no acrostichal or dorsocentral bristles; halteres white; wings clear hyaline.

Front V-shaped, the bottom as broad as an antennal joint, ocelli large, divergent black ocellar bristles present; outer antennal joint short, onion shaped, the arista subterminal, three times length of antennae; eyes completely contiguous on the face, the lower facets large; proboscis short, black. Humeri evident and delimited by a distinct furrow. Pleurae densely pruinose, the ground color a little reddish near the front coxae, no pleural hairs. Middle tibiae minutely and closely black-setulose within. Veins narrow and dark except at the base of the wing, marginal cell long, the second section of the costa one and three-fourths as long as the third section, first posterior cell ending at the wing-tip, its veins parallel, the outer sections of the fourth vein proportioned 1 : 6, of the fifth vein, subequal.

Two specimens; Alamogordo, New Mexico, type in the Academy of Natural Science, Philadelphia. This species differs from *apicis* Williston (*Drapetis*; = *insularis* Melander) in that the palpi and halteres are not brownish, the wings show no trace of infuscation, the second section of the costa is not equal to the third, the outer section of the fifth vein is not longer than the preceding, and in that the front is somewhat broader.

(3) *Tachysmpis nervosa*, nov. sp. — Female. Length 1.75 mm. Front narrowly V-shaped, cinereous, vertical bristles minute, occiput completely dusted; basal antennal joint brown, apical blackish, arista three times the antennal length; palpi elliptical, brownish, white at base and with glistening white coating, two small white setae; notum covered with brownish gray dust, humeri pronounced, no humeral bristle, seriate setulae very small, posterior dorsocentral present, one notopleural, lateral scutellar seta small; pleurae cinereous, not whiter below. Abdomen subshining. Coxae and legs mostly yellowish, apical half of posterior femora and posterior tarsi brownish, anterior femora with rows of yellow setulae below. Halteres yellow, calypteres blackish. Wings hyaline, veins mostly black, the fourth vein thin, the pedicel of the second and third veins yellow, costal sections about 1 : 1 : 0.6 : 0.2, sections of fifth vein equal, first posterior cell ending at apex of wing, third and fourth veins straight, very slightly converging.

Holotype, Stanford University, California, July, 1915 (Melander).

11. Recurved process of ventral pygidial valve broad, the dorsal valve duckbill-shaped; notal setulæ weak T. UNIVERSALIS, MELANDER.
 Recurved pygidial process narrow, dorsal valve with short narrow termination; notal setulæ evident T. AGENS, MELANDER.
12. Four pronounced scutellar bristles; abdomen bristly before pygidium; halteres black T. TETRACHÆTA, nov. sp. (1).
 Lateral scutellar bristles reduced 13.
13. Halteres and palpi yellow; arista three times antennal length 14.
 Halteres dull yellow to black; arista four times antennal length. 15.
14. Third vein much stronger than fourth and clouded. T. RUFICORNIS nov. sp. (2).
 Third and fourth veins equal, infumation of wings uniform except for the paler base T. CALVA, MELANDER.
15. Wings hyaline T. APICIS, Williston.
 Wings more or less infumated. 16.
16. End process of pygidium leaf-shaped; halteres yellowish; hind femora yellow and brown; palpi white ♂, blackish ♀ . . . T. EPIBOSCA, nov. sp. (3).

(1) *Tachyempis tetrachæta*, nov. sp. — Male. Length 1.75 mm. Front broadly V-shaped, pollinose, two pairs of ocellar bristles, vertical bristles small, occiput completely coated with brown; basal antennal joint yellowish, apical black, arista relatively strong, twice the antennal length; palpi white, elongate ovoid, apical seta long and whitish. Notum dusted with brownish, bristles stronger than usual, humeri large, four notopleural, the center two strong, acrostichal and dorsocentral rows of setulæ evident though small, the last two dorsocentrals setiform, four equal and strong scutellar bristles. Abdomen subshining, its hairs stronger than usual, the last segment bristly, pygidium large, the recurved terminal process rather broad. Coxæ and front legs yellowish, posterior legs yellowish brown, front femora robust, anterior femora with usual flexor setulæ. Halteres and calypteres black. Wings rather broad, with slight and uniform infumation, veins strong and blackish, costal sections proportioned about 1 : 0.6 : 0.6 : 0.3, first posterior cell ending at apex of wing, about five-sixths as wide as the submarginal at end of second vein, third and fourth veins apically parallel, distance between crossveins less than the length of the posterior crossvein, sections of fifth vein nearly 2 : 3.

Holotype, Concepcion, Chile (R. Thaxter), deposited in the Museum of Comparative Zoology of Harvard University.

(2) *Tachyempis ruficornis*, nov. sp. — Male. Length 1.9 mm. Body black, legs, antennæ, mouthparts, hairs, bristles and halteres yellowish, wings lightly infumated along the veins. Occiput shining, very lightly dusted, almost glabrous; front narrowly V-shaped, the ocelli rather large, ocellar bristles large. Antennæ reddish-yellow, short, the two joints of equal size, the outer globular, with subdorsal arista, which is three times the length of the antennæ. Proboscis brownish, short and vertical; palpi short, narrow, tapering, white and with a long white terminal bristle. Mesonotum polished black, a little dusted anteriorly; one humeral, some supraalar, a double row of about five acrostichal, and about seven dorsocentral bristles present, scutellum with four bristles, the inner pair long; pleuræ finely scabrous so as to appear subshining; abdomen polished. Legs including the coxæ testaceous, the outer half of the hind femora infuscated, the front femora strongest, setulæ of middle femora long and fine. Halteres pale yellow, including the base. Wings narrow, slightly infumated except at the base, the darkening a little stronger along the third vein, the second section of the costa slightly longer than the third, curve of the second vein uniform, the marginal cell two-thirds as wide as the submarginal cell, third and fourth veins subparallel, the first posterior cell widest before its tip, anterior crossvein two-thirds as long as the posterior, the distance between the crossveins one-half greater than the length of the posterior crossvein, fifth vein not angulate at the posterior crossvein, its sections subequal.

One specimen collected by Dr. P. P. Calvert, March 4, 1910, at Cachi, Costa Rica, at 3450 ft altitude.

(3) *Tachyempis epibosca*, nov. sp. — Male. Length 1.75-2 mm. Occiput lightly dusted, lower orbits polished, front very broad above, vertical bristles smaller than the ocellar pair, sometimes minute, ocelli moderately large; antennæ brownish, arista thin and four times the antennal length or even longer; palpi narrow, white, with three small apical white setæ, proboscis black. Thorax completely dusted with brownish, pleuræ not becoming cinereous on lower part, the single notopleural and scutellar bristles black, the supra-alar setulæ brown, seriate setulæ of notum developed though small, posterior dorsocentral not developed, no humeral. Abdomen dull piceous, pygidium large, elongate, very complex when open, the recurved terminal process ending in a broad leaf-like expansion, no specialized setæ. Coxæ and legs pale yellow, the front tibiae and apical half of hind femora brownish, legs elongate, front femora setose below, middle femora with a row of short setæ below, the basal seta long and yellow, middle trochanters with two or three small black spinules. Halteres sordid yellow, the root yellowish, calypteres and fringe dark. Wings elongate, somewhat infumated over basal half of third vein, veins brown, sections of costa proportioned 1 : 1.3 : 1.6 : 0.5, fourth vein ending beyond wing-tip, sections of fifth vein 3 : 4.

Female, palpi blackish.

Three males and five females, La Suiza de Turrialba, Costa Rica (P. Schild).

End process slender; halteres black; hind femora mostly

black; palpi ♂ black. *T. HALTERATA*, nov. sp. (1).

Geographical distribution.

1. *T. agens*, Melander, Psyche, Vol. 17, p. 59, f. 2, 19 [1910] (*Tachydromia*). Washington.
2. *T. apicis*, Williston, Trans. Ent. Soc. Lond. Vol. 3, p. 442, pl. 16, f. 167 West Indies.
[1896] (*Drapetis*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 209
[1902] (*Drapetis*); Bezzi, Nova Acta Akad. Nat. Halle, Vol. 91,
p. 397 [1909] (*Ctenodrapetis*).
insularis, Melander, Psyche, Vol. 17, p. 58, f. 17 [1910] (*Tachydromia*).
3. *T. calva*, Melander, Psyche, Vol. 17, p. 58, f. 18 [1910] (*Tachydromia*). Georgia.
4. *T. capnodes*, nov. sp. Costa Rica.
5. *T. cinerea*, nov. sp. New Mexico.
6. *T. dichroa*, Bezzi, Denkschr. Med. Nat. Ges. Jena, Vol. 13, p. 183 [1908] S. W. Africa.
(*Tachista*).
7. *T. epibosca*, nov. sp. Costa Rica.
8. *T. gatalina*, nov. sp. Costa Rica.
9. *T. halterata*, nov. sp. Costa Rica.
10. *T. hyalipennis*, Macquart, Dipt. N. France, Vol. 3, p. 92 [1827] (*Tachy- W. Europe.*
dromia); Hist. Nat. Dipt. Vol. 1, p. 351 [1834] (*Tachydromia*);
Meigen, Syst. Besch. Vol. 7, p. 96 [1838] (*Tachypeza*).
11. *T. longispina*, nov. sp. West Indies.
12. *T. nervosa*, nov. sp. California.
13. *T. nigra*, nov. sp. Costa Rica.
14. *T. pictipes*, nov. sp. — Pl. 4, Fig. 35. Costa Rica.
15. *T. ruficornis*, nov. sp. Costa Rica.
16. *T. Schildi*, nov. sp. Costa Rica.
17. *T. simplicior*, Wheeler & Melander, Biol. Centr. Amer. Dipt. Suppl. p. 375 Mexico.
[1901] (*Phonentisca*); Melander, Trans. Ann. Ent. Soc. Vol. 28 p. 205, f. 6
[1902] (*Phoneutisca*); Psyche, Vol. 17, p. 57, f. 15 [1910] (*Tachydromia*).
18. *T. tetrachata*, nov. sp. Chile.
19. *T. universalis*, Melander, Psyche, Vol. 17, p. 60 f. 16 [1910] (*Tachydromia*) United States.
20. *T. vitripennis*, Bezzi, Denkschr. Med. Nat. Ges. Jena, Vol. 13, p. 182 S. Africa.
[1908] (*Tachista*).

6. GENUS CHARADRODROMIA, NOV. GEN.

Characters. — Rather robust, opaque pollinose species measuring one to two millimeters. Head narrower than the thorax, globular, occipital setulae sparse, two vertical bristles, the inner pair convergent, two divergent ocellar bristles; eyes well separated, the lower hind margin shallowly excised,

(1) *Tachyempha halterata*, nov. sp. — Male. Length 2 mm. Black, occiput lightly dusted over all, front relatively narrow, the sides parallel above the front ocellus where the front is no wider than the antennal length, vertical bristles a little smaller than the ocellar pair, both black, ocelli moderate in size; antennae brown, arista thin, four times the antennal length, brown at base, otherwise yellowish; palpi black, elongate oval, the outer face glistening white in certain lights. Thorax dusted with dark brown, the pleurae becoming grayish brown toward coxae, the two notopleural, single supra-alar and four scutellar bristles black, about six acrostichal and seven dorsocentral setulae. Abdomen black, with brown coating, pygidium rather long, the apical process with long, thin curved termination which bears four thin setae on the right side. Legs rather slender, coxae and anterior legs largely yellowish, the femora brown above knees, hind femora black except at base, hind tibiae black at base merging to yellow at apex, last joint of all tarsi brown, no flexor setae or thorns present. Halteres, calypteres and fringe black. Wings strongly infumated, paler between humeral crossvein and origin of second vein and along hind margin, veins black, costal sections proportioned about 1 : 1 : 1 : 0.4, fourth vein ending beyond wing-tip, the first posterior cell about two-thirds as wide as the submarginal opposite end of second vein, sections of fifth vein 5 : 6.

Holotype, La Sulza de Turrialba, Costa Rica (P. Schild).

antennal emargination small, facets nearly uniform, bare; sides of front diverging, separated at the antennæ as much as the length of the outer antennal joint, face short, a little narrower than the front, epistome shining; antennæ two-jointed, the outer joint oval, with long coarse terminal arista; proboscis incurved, palpi small, oval, bisetose. Thorax quadrate, notum coarsely hairy, one humeral, one posterior dorsocentral, apical scutellars crossed, pleuræ completely pruinose; abdomen subshining, terminal styles of female small. Legs hairy but devoid of distinct bristles, the front femora enlarged. Costa continuing to fourth vein, first section hairy, basal seta present, first vein ending at middle of wing, second vein ending midway between first and third, basal cells rather small, first somewhat surpassing the second, posterior crossvein oblique, the lower-outer angle of the second basal cell about seventy degrees, a vague trace of the reflexed anal crossvein visible.

Genotype: *C. microphona*, nov. sp.

This genus in venation and general appearance suggests *Chersodromia*, but the legs lack the characteristic bristles of that group. The specialized humeri suggest *Tachyempis*, but the approximation of the crossveins preclude kinship to *Tachyempis* and its near relatives. It is regrettable that the male has not been discovered. Two species are here recorded.

Geographical distribution.

1. *C. microphona*, nov. sp. (1).

Washington.

2. *C. syletor*, nov. sp. (2).

Washington.

7. GENUS COLOBONEURA, MELANDER

Coloboneura, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 299 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 248, 261 (1903); Bezzi, Ann. Mus. Hungar. Vol. 2, 321 (1904); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Kertész, Cat. Dipt. Vol. 6, p. 143 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 526 (1910); Melander, Psyche, Vol. 17, p. 49 (1910).

Characters. — Thick-set, bristly, opaque pollinose species of three to five millimeters. Head globular, higher than broad, broader than deep, densely pollinose, the occiput large below and setose, two pairs of vertical, one pair of diverging ocellar and one of cruciate preocellar bristles. Eyes small, in both sexes widely separated on the face and less so on the front, face convex, cheeks one-third the eye-height with nearly straight lower margin, clypeus pollinose, semicircular; eyes with very short microscopic pubescence, the facets uniform, hind margin broadly excised below and lower angle round. Antennæ contiguous, plainly three-jointed, the second joint with a crown of setulæ, the third joint short

(1) **Charadrodromia microphona**, nov. sp. — Female. Length 1.25 mm. Piceous black, head and thorax entirely overlaid with fine cinereous pollen, bristles and hairs brown; abdominal hairs sparse. Antennæ brown, arista twice the length of the outer antennal joint; palpi yellow, proboscis black. Legs yellowish, the posterior coxæ and the femora more or less tinged with light brownish, apex of tarsi somewhat dusky, a small preapical seta on hind tibiæ. Wings hyaline, veins yellow, fourth vein ending at wing-tip, first posterior cell widest at margin, sections of fifth vein proportioned 2 : 3.

Seven specimens, Bickleton, Washington, 26 June, 1917 (Melander).

(2) **Charadrodromia syletor**, sp. nov. — Female. Length 2 mm. Jet black in ground-color, the head overlaid with dust, brownish above and cinereous below, mesonotum lightly brown-dusted, pleuræ completely gray-pruinose. Antennæ black, arista twice the length of the antenna, palpi blackish. Notal hairs shorter than in the preceding species; abdomen shining black, terminal styles slender and black. Legs black, hairs yellowish, front tibiæ thicker than posterior pairs. Wings brownish, veins brown, first posterior cell widest at middle, crossveins meeting, sections of fifth vein 5 : 6.

Holotype, Adna, Washington, 10 July, 1917 (Melander).

ovate with a subapical slender arista directed somewhat downward, its basal joint very short followed by a slightly thickened rudimentary middle joint which may not be evident. Proboscis conical, inflexed, two-thirds the height of the head; palpi vertical, oval, setulose and with apical bristle. Thorax quadrate, densely pollinose, not pubescent but setulose and bristly, one humeral, one posthumeral, three notopleural, two supraalar, one postalar, five dorsocentral, and four scutellar bristles; pleuræ pollinose, even the metapleuræ bare but the propleuræ with a bristle above and one below and the sternopleuræ with two strong intercoxal bristles. Abdomen pollinose, setulose, consisting of eight segments, with two dorsal and several lateral pittings to each segment; hypopygium relatively small. Legs robust, coxæ setose, the front pair strong; femora stout, setulose and bristly, the hind pair bristly above and in front as well as below; all the tibiæ with three extensor bristles but the hind ones with additional bristles in several rows, front tibiæ with two apical, posterior tibiæ with one apical bristle, that of the hind legs short but strong; tarsal segments becoming depressed distally, hind metatarsi setulose, pulvilli very large. Wings rather oblong and narrow, opalescent, the costa evanescent before the fourth vein, its first section long, extending beyond the middle of the wing, with strong basal bristle and microscopically setulose, the second basal cell a little shorter than the first, no anal cell but the outer portion of the sixth vein faintly visible as a fold in the wing.

Type species : *C. inusitata*, Melander (Pl. 7, Fig. 10). *Nubifera*, Coquillett, is a true *Coloboneura* as verified by an examination of the type. The species frequent the dry sands of the seashore, over which they run with great agility but do not take readily to the wing although they are able to fly well.

Geographical distribution.

1. *C. argyropalpa*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 358, f. 7 (1904). New Guinea.
2. *C. exquisita*, Malloch, Ent. News, Philad. Vol. 34, p. 5 (1923). Maryland.
3. *C. hirta*, Walker, Ent. Mag. London, Vol. 3, p. 180 [1836] (*Tachypesa*); Europe, N. Africa.
Ins. Brit. Vol. 1, p. 137, pl. 5, f. 5 [1851] (*Chersodromia*); Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 119 [1907] (*Chersodromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 227, f. 125, 126 [1910] (*Chersodromia*).
4. *C. ornatipes*, Bigot, Bull. Soc. Zool. France, Vol. 16, p. 277 [1891] (*Chersodromomyia*); Canary Isl.
Becker, Mitteil. Zool. Mus. Berlin, Vol. 4, p. 44 [1908] (*Chersodromia*).
5. *C. inusitata*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 230, 344, f. 47-49 Atlantic Coast of
(1902); Slosson, Ent. News, Philad. Vol. 14, p. 268 (1902). — United States.
Pl. 7, Fig. 10.
6. *C. nubifera*, Coquillett, Dipt. Commander Isl. p. 343 [1899] (*Tachydromia*); Bering Sea.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 342 [1902] (*Tachydromia*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 265, note
(1903); Melander, Psyche, Vol. 17, p. 52 (1910).

8. GENUS CHERSODROMIA, WALKER

Chersodromia, Walker, Ins. Brit. Vol. 1, p. 137 (1851); Rondani, Dipt. Ital. Vol. 1, p. 147 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 564 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 96 (1862); Bigot, Bull. Soc. Zool. France, Vol. 16, p. 277 [1891] (*Chersodromomyia*); Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 43 (1902); Coquillett, Proc. Ent. Soc. Wash., Vol. 5, p. 247, 261 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Kertész, Cat. Dipt. Vol. 6, p. 144 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 522 (1910); Lundbeck,

Dipt. Danica, Vol. 3, p. 274 (1910); Melander, Psyche, Vol. 17, p. 49 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 45, 89 (1910).

Characters. — Rather robust, opaque pollinose species, measuring from one to three millimeters. Head narrower than the thorax, globular, the occiput flattened hemispherical and rather finely and sparsely setulose; eyes well separated on the front and face, the facets uniform, microscopically hairy, cheeks about one-sixth the eye-height, but somewhat variable in width, clypeus quadrate, pollinose; two pairs of verticals, one of diverging ocellar and one of converging preocellar bristles. Proboscis conical, inflexed, one-half the head-height; palpi broadly oval, sparsely pubescent and with an apical bristle. Antennæ contiguous, apparently two-jointed as the first joint is rudimentary and fused with the second, the third joint short oval, more or less pubescent, with a subdorsal process forming a pedicel to the geniculate pubescent arista. Thorax opaque pollinose, setulose rather than pubescent, usually with the following bristles prominent: one humeral, one posthumeral, three notopleural, four dorsocentral, three supraalar, one postalar, two or four scutellar, but any of these may be absent; pleuræ largely pollinose, usually with a shining area on the lower part of the sternopleuræ, neither bristly nor hairy. Abdomen pollinose, consisting of seven segments plus the hypopygium, which is large, deformed, twisted to the right and formed of various forcipate valves over a triangular under-piece; the individual segments with lateral pittings. Legs rather stout, setulose, the front femora a little thickened, all the femora with a preapical bristle, hind tibiæ with several series of bristles beyond the middle, pulvilli large. Wings translucent and never hyaline, costa extending to the fourth vein, first vein ending at the middle of the wing, the first section of the costa usually loosely ciliate and with a strong basal bristle, second basal cell a little shorter than the first, no anal cell.

Type species: *Ch. arenaria*, Haliday, has smaller wings than usual, the wings scarcely exceeding the abdomen. The species of *Chersodromia* frequent mainly the sandy seashore, but some may occur on the shores of fresh water. The darker species seem to prefer the wet sand near the water's edge; the gray species occur higher up on the dry sand and even run up and down the beach grass. The developmental stages are unknown.

TABLE OF THE KNOWN SPECIES OF *CHERSODROMIA*

- | | | |
|--|-----------------------------|----|
| 1. Yellow, with black bristles; eyes meeting beneath the antennæ . . . | CH. LUTESCENS, Bezzi. | |
| Black species; eyes separated more or less on the face | | 2. |
| 2. Wings not longer than the abdomen; legs black | CH. ARENARIA, Haliday. | |
| Wings surpassing the abdomen | | 3. |
| 3. Hind tibiæ with one pair of bristles at the middle of their extensor side; bristles of notum yellowish; costal hairs pale | CH. NANA, Coquillett. | |
| Hind tibiæ with several bristles along extensor side | | 4. |
| 4. Middle tibiæ with flattened scale-like flexor bristles; no dorsocentrals; legs brown, knees yellow | CH. GRATIOSA, Becker. | |
| Middle tibiæ without flexor scales; dorsocentrals usually present. | | 5. |
| 5. Legs and halteres black, wings dusky, body dark | | 6. |
| Legs and halteres more or less yellow, wings whitish, body lighter gray pollinose. | | 7. |
| 6. Middle tibiæ with extensor bristles; costa with very short setulæ, its second and third sections equal | CH. DIFFICILIS, Lundbeck. | |
| Middle tibiæ without extensor bristles; costa ciliate, its second section shorter | CH. CURSITANS, Zetterstedt. | |

7. Thorax without discal bristles, its hairs pale 8
 Thorax with discal bristles, including one posthumeral 9.
 8. Scutellum with two bristles; second antennal joint minute; legs yellow. CH. BREVICORNIS, Meijere.
 Scutellum without bristles; second antennal joint equal to the third;
 femora brown CH. INCANA, Walker.
 9. Costal hairs short; middle tibiae with extensor bristle CH. SPECULIFERA, Walker.
 Costal hairs long 10.
 10. Middle tibiae with two, hind tibiae with seven extensor bristles; hairs
 black CH. HOUGHII, Melander.
 Middle tibiae without long extensor bristles, hind tibiae with five; hairs
 pale CH. BECKERI, nov. sp. (1).

Geographical distribution.

1. *Ch. arenaria*, Haliday, Ent. Mag. London, Vol. 1, p. 161 [1833] (*Tachy- Europe.*
peza); Walker, ibidem, Vol. 3, p. 180 [1835] (*Tachypeza*); List
 Dipt. Brit. Mus. Vol. 3, p. 507 [1849] (*Tachydromia*); Ins. Brit.
 Vol. 1, p. 138 (1851); Lundbeck, Dipt. Danica, Vol. 3, p. 281,
 f. 129 (1910).
brevipennis, Zetterstedt, Fauna Ins. Lappon. p. 548 [1838] (*Tachypeza*);
 Dipt. Scand. Vol. 1, p. 323 [1842] (*Tachypeza*); ibidem, Vol. 13, p. 4996
 [1859] (*Tachypeza*).
 2. *Ch. Beckeri*, nov. sp. Germany.
incana, Becker (not Walker), Zeitschr. Hym. Dipt. Vol. 7, p. 119 (1907).
 3. *Ch. brevicornis*, Meijere, Tijds. v. Ent. Vol. 1, p. 177, pl. 4, f. 6, 7 (1907). C. Europe.
 4. *Ch. cursistans*, Zetterstedt, Vet. Akad. Förh. Stockholm, 1819, p. 82 Europe.
 [1819] (*Empis*); Fallen, Dipt. Suec. Suppl. Vol. 1, p. 7 [1823]
 (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 322 [1842]
 (*Tachypeza*); Walker, Ins. Brit. Vol. 1, p. 137 (1851); Schiner,
 Fauna Dipt. Austr. Vol. 1, p. 96 (1862); Lundbeck, Dipt. Danica,
 Vol. 3, p. 278, f. 127 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 89
 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 75
 (1913).
 5. *Ch. difficilis*, Lundbeck, Dipt. Danica, Vol. 3, p. 280, f. 128 (1910); Frey, N. Europe.
 Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 75 (1913).
 6. *Ch. gratiosa*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 4, p. 41 (1908). Canary Islands.
 7. *Ch. Houghii*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 206, pl. 5, E. United States.
 f. 2, 3 [1902] (*Stilpon*); Aldrich, Cat. N. Amer. Dipt. p. 314 [1905]
 (*Coloboneura*); Melander, Ent. News, Philad. Vol. 17, p. 370 (1906).
 8. *Ch. incana*, Walker, Ins. Brit. Vol. 1, p. 138 (1851); Strobl, Verh. Zool.- Ireland.
 bot. Ges. Wien. Vol. 59, p. 179 (1909); Lundbeck, Dipt. Danica,
 Vol. 3, p. 282 (1910).

(1) *Chersodromia Beckeri*, nov. sp. Syn.: *incana*, Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 119 (1907). — Female. Length 1.3 mm. Blackish, densely overlaid with fine gray pollen, the hairs and bristles golden. Face and front equally broad, cheeks one-sixth the eye-height; two pairs of vertical, one of ocellar and one of preocellar bristles; proboscis, palpi and antennae yellow. Thorax with one humeral, one posthumeral, one notopleural, two supraalar, three dorsocentral, one postalar and two scutellar bristles, all long, slender and yellowish, acrostichal setulae biseriate; sternopleurae largely shining. Legs yellowish, the tarsi a little dusky toward the end, middle tibiae with two short extensor bristles, hind tibiae with about five extensor bristles, in two series. Wings opalescent, veins whitish, costa with long basal bristle, its first segment with moderately long, closely placed pale cilia, the second, third and fourth sections of the costa proportioned 1 : 2 : 1.

Two specimens, seabeach at Swinemünde, Baltic Sea, received from Dr. Th. Becker as *incana*. The species is a close relative of *Houghii*, which has stronger tibial bristles; the male of *Houghii* lacks the extensor bristles on the middle tibiae and has the flexor surface of this joint closely black setulose.

9. *Ch. lutescens*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 358 (1904). New South Wales.
 10. *Ch. nana*, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 166 [1903] (*Coloboneura*). Florida.
 11. *Ch. speculifera*, Walker, Ins. Brit. Vol. 1, p. 138 (1851); Bezzi, Bull. Soc. Ital. C. & S. Europe.
 Vol. 30, p. 151 (1899); Becker, Zeitschr. Hym. Dipt. p. 119 (1907).
 12. *Ch. species*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 491 (1912). Formosa.

9. GENUS THINODROMIA, MELANDER

Thinodromia, Melander, Ent. News Philad. Vol. 17, p. 370 (1906); Williston's Man. N. Amer. Dipt. p. 222 (1908); Kertész, Cat. Dipt. Vol. 6, p. 169 (1909); Melander, Psyche, Vol. 17, p. 49 (1910); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 614 (1910).

Characters. — Robust, opaque gray pollinose, black-bristly species with aborted wings. Head globular, occiput flattened hemispherical, not very bristly; two pairs of vertical bristles, one of diverging ocellar and one of cruciate preocellar; eyes widely separated, facets uniform, bare, the incision at the antennæ strong, cheeks one-fourth the eye-height. Antennæ three-jointed but the first joint very small, no setæ beneath, third joint round, apically pubescent, with dorsal projection bearing the two-jointed geniculate arista, the basal joint of the arista long, solid, the outer joint slender and pubescent. Proboscis strong, very robust, inflexed, the palpi elliptical, setulose on the anterior surface and with a strong apical bristle. Thoracic bristles strong, one humeral, one notopleural, two supraalar, three dorsocentral, one postalar, a double row of sparse acrostichal setulæ, scutellum with two cruciate apical and two smaller lateral bristles; pleuræ not hairy. Abdomen with eight segments, the individual segments with a single pit on each side and with several larger ones at the extreme lateral edge, the last segment of the female compressed wedge-shape, with very short oval styles, in the male the abdomen is very robust, the bristles becoming longer posteriorly, those of the seventh segment nearly as long as the last four segments; pygidium large, globose, closed, somewhat asymmetrical and twisted to the right, the small apical organs nearly dorsal. Legs short, robust, with black setulæ, those of the under side of the front femora and of the outer apical side of the hind femora more prominent, hind tibiæ with two extensor bristles, one before the middle and one preapical, outer half of the hind tibiæ with about six bristles irregularly placed, a pair of short apical bristles on the front tibiæ, tarsi flattened distally. Wings very small, triangular in outline, horizontally extended over the abdomen, reaching only to the third segment, the costal margin straight, stiff and minutely setulose, first vein ending near the apex of the wing, crossveins close together, the second basal cell a little shorter than the first, both extending to beyond the middle of the wing, no trace of an anal cell, hind margin entirely bare.

Genotype : *T. inchoata*, Melander (Pl. 7, Fig. 71). The two known species are inhabitants of sandy beaches on the Pacific coast of North America. They are utterly unable to fly, but run nimbly over the sand and driftwood.

Geographical distribution.

1. *Th. inchoata*, Melander, Ent. News Philad. Vol. 17, p. 370, fig. (1906). — Pacific Coast of North America.
 Pl. 7, Fig. 71.
2. *Th. parallela*, nov. sp. (1). Pacific Coast of North America.

(1) **Thinodromia parallela**, nov. sp. — Length 2.5 mm. A larger species than *inchoata* differing in the structure of the wings. The wings are narrower in length, measuring three times as long as wide, the first five veins parallel, equally strong and reaching the wing-margin, the third vein ending at the extreme apex, the costa curving around the apex of the wing and continuing to beyond the end of the third vein. The costal setulæ are longer and obliquely erect. The blackish color fills the apical third of the wing. In *inchoata* the wings are twice as long as broad; the third vein bends forward so as to end in the first vein; the second and fourth veins are obsolete; the costa becomes thin at the apex of the wing; the costal

10. GENUS HALSANALOTES, BECKER

Halsanalotes, Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 41 (1902); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 321 (1904); Kertész, Cat. Dipt. Vol. 6, p. 143 (1909); Melander, Psyche, Vol. 17, p. 49 (1910); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 453 (1912).

Characters. — Head globular, the occiput flattened-hemispherical, eyes pubescent, widely separated on the front and face, cheeks one-fourth the eye-height, face slightly convex; two pairs of vertical bristles, one of ocellar and one of diverging preocellar; antennæ rather widely separated, very short, the outer joint triangular, pubescent, with a long hairy dorsal arista; proboscis very short, vertical, palpi oval, with small apical bristle. Thorax not broader than the abdomen, pollinose, with short pubescence but no discal bristles, two scutellar, one humeral, one notopleural and one supraalar bristle. Abdomen opaque pollinose, comprising five segments and the hypopygium which is terminal, blunt and provided with several lamellæ and a short, erect, dorsal appendage. Legs short, not thickened, simple. front tibiæ with two apical bristles, middle tibiæ with one apical, hind tibiæ with a row of four or five extensor bristles on the apical half, last tarsal joint widened. Wings oval, basal cells equal, third and fourth veins diverging, anal cell weakly indicated, visible only when obliquely viewed.

Genotype : *H. amaurus*, Becker, is the only species known. It measures 0.5 to 0.75 mm. in length. Two species described by Bezzi as *Halsanalotes* are here placed in the new genus *Micremphis*.

Geographical distribution.

1. *H. amaurus*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 42, 64, pl. 4, N. Africa.
f. 1-3 (1902).

11. GENUS MICREMPIS, NOV. GEN.

Characters. — Very small, nearly shining, dark colored species with pale legs. Head spherical, the upper occiput a little flattened; front V-shaped, the eyes nearly meeting just above the antennæ, a pair each of vertical, diverging ocellar and cruciate preocellar bristles, excision of the eye at the antennæ angular and small, facets uniform, face more or less obliterated below the antennæ, broadening toward the linear cheeks. Antennæ short, two-jointed, the basal joint with a small or with no seta beneath, the outer joint round, compressed, with a dorsal prolongation forming the pedicel of the geniculate, pubescent arista. Proboscis short, vertical but a little inflexed, not thickened at the base, palpi broadly oval, with apical bristle, Thorax convex, broader than the head or abdomen, shining, no discal bristles, not pubescent, but with hairs in the dorsocentral and acrostichal rows, bare on the flattened area in front of the scutellum, humeral bristle present or absent, two notopleural, two scutellar, no postalar bristle; pleuræ shining or more or less pollinose. Abdomen opaque, nearly bare, comprising seven segments and the hypopygium. Legs normal, rather short, front femora strongest, no bristles spines or spurs, the hairs inconspicuous. Wings with strong bristle at the base of the costa, second vein short, ending near the middle of the wing, basal cells small, equal, third and fourth veins diverging and with an anterior wing, no anal cell or veins.

Type species : *M. nana*, nov. sp.

setulæ are short and more appressed; and the dark color is concentrated about the third vein and the lower angle of the second basal cell. None of the veins of *inchoata* reach the hind margin of the wing.

This species was found by the author in numbers on the seashore of Fossil Island of the Suci Islands off the coast of Washington, July 16, 1909, and again on the dry sands about driftwood on the ocean beach at Long Beach, Washington, May to August, various years.

Geographical distribution.

1. *M. *eocenica*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 89, 96, pl. 4, f. 3-5 Baltic Amber.
[1908] (*Phoneutisca*).
2. *M. fuscipes*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 490 [1912] (*Halsanulotes*). Formosa.
3. *M. minuta*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 339 [1902] New Mexico.
(*Stilpon*).
4. *M. nana*, nov. sp. (1). — **Pl. 4, Fig. 32.** Texas.
5. *M. obliqua*, nov. sp. (2). Iowa.
6. *M. setifrons*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 357, 41 [1904] Australia.
(*Halsanulotes*).
7. *M. *suspiciosa*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 89, 98, pl. 4, Baltic Amber.
f. 6. 7 [1908] (*Phoneutisca*).
8. *M. testacea*, nov. sp. (3). Virginia.
9. *M. varipes*, nov. sp. (4). Peru.

(1) ***Micremphis nana***, nov. sp. (**Pl. 4, Fig. 32**). — Male. Length 0.6 mm. Dark brownish, legs yellow, the tarsi darker apically. Vertex and lower occiput lightly cinereous pollinose; antennæ brown, the outer joint compressed, circular, with four apical hairs and with a dorsal process (the pedicel of the arista), the arista then bent down, rather thickly pubescent. Proboscis and palpi yellowish. Thorax very lightly dusted, nearly polished, not pubescent, one row of sparse dorsocentral hairs. Halteres black, with yellow stems. Legs simple, not bristly, their pubescence inconspicuous. Wings subhyaline, veins brown, the second, third and fourth sections of the costa proportioned 1 : 4 : 1, crossveins meeting, sections of the fifth vein proportioned 1 : 2.

Two specimens, Austin, Texas.

(2) ***Micremphis obliqua***, nov. sp. — Female. Length 1.3 mm. Occiput black, lightly dusted, front V-shaped, at the bottom scarcely one-half the diameter of the first antennal joint; face triangular, the eyes barely separated just beneath the antennæ, cheeks narrow; palpi whitish, not hairy, proboscis short, brown; antennæ two jointed, without a seta beneath, the basal joint yellow, the outer joint blackish, sub-triangular, its upper edge straight, its lower edge rounded, one-fourth longer than broad, apically pubescent, the terminal arista one-fourth longer than the antenna, microscopically pubescent; vertical bristles twice as long as the widely separated ocellars, brown. Dorsum shining black, pleuræ except the polished sterno-pleuræ opaque gray pollinose, mesonotal hairs pale, regularly placed on the anterior two-thirds, posteriorly bare except for the three dorsocentrals, four rows of about seven acrostichals, the middle rows diverging behind, humeral bristle erect, two scutellars. Abdomen brown. Legs entirely yellow, only the middle femora with preapical bristle, no extensor bristles or apical spur on the hind tibiæ. Halteres brown, calypteres with four cilia. Wings clear hyaline, veins narrow brownish, the first four veins curving forward and diverging from each other, the third section of the costa two and one-half times as long as either the second or fourth section, submarginal cell apically large, at the tip of the first vein one-third as wide as the marginal cell and opposite the tip of the second vein more than twice as wide as the first posterior, this cell gradually widens to its apex, posterior crossvein strongly oblique, the lower apical angle of the second basal cell about fifty degrees, on the fourth vein the two basal cells of equal length, sections of the fifth vein equal.

One specimen, submitted by Professor R. L. Webster, who found it at Ames, Iowa, July 16, 1908, attacking the apple leaf-hopper, *Empoasca mali*.

(3) ***Micremphis testacea***, nov. sp. — Female. Length 1.3 mm. Testaceous, including the head, thorax, legs, antennæ and mouthparts; the abdomen and knob of the halteres brown. Front broadly V-shaped, face linear; one pair each of strong vertical, ocellar and preocellar bristles; palpi ovate, with a single black seta, proboscis one-fourth the head-height; outer antennal joint ovate, with subdorsal deflected arista a little over twice the length of the antenna. Thorax round, rather shining, the disc seriatly hairy, with the following moderate blackish bristles: one humeral, two notopleural, one supraalar, one postalar, one intraalar, and two scutellar; upper pleuræ lightly pruinose, lower pleuræ glistening; abdomen opaque, ovipositor short, compressed, its blackish base shining. Wings with a slight yellowish tinge, the first four costal sections proportioned 1 : 0.5 : 0.9 : 0.7, the first four veins uniformly diverging and curving forward, the sections of the fourth vein proportioned 1 : 3, of the fifth vein, 1 : 1.3, crossveins meeting, cilia of the hind margin shorter than the anterior crossvein.

Type, Falls Church, Virginia, Nathan Banks, collector; Paratype, Plummer's Island, Maryland, H. Barber, collector, in U. S. National Museum.

(4) ***Micremphis varipes***, nov. sp. — Length 1 mm. Body black, legs largely yellow, halteres black, wings clear hyaline, veins narrow and brown. Head lightly pollinose, more shining about the ocelli, front V-shaped, the sides curving inward, eyes subcontiguous below the antennæ; palpi and proboscis black, the latter one-half the height of the head; antennæ black, the outer joint defective. Mesonotum polished, nearly bare, pleuræ lightly pollinose, leaving a circular central spot polished; abdomen subshining, pygidium small, ovipositor short and opaque. Anterior coxæ yellow, the hind coxæ black, front legs yellow, in the female the tarsi and a vague apical spot on the upper side of the femora infuscated, middle legs of the female blackish beyond the middle of the femora, of the male only the outer half of the femora darkened, hind legs

12. GENUS SYMBALLOPHTHALMUS, BECKER

- Symballopthalmus**, Becker, Wien. Ent. Zeit. Vol. 8, p. 285 (1889); ibidem, Vol. 9, p. 34 (1890); Mitteil. Zool. Mus. Berlin, Vol. 2, p. 42 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 257, 261 (1903); Kertész, Cat. Dipt. Vol. 6, p. 145 (1909); Lundbeck, Dipt. Danica, Vol. 3, p. 283 (1910); Melander, Psyche, Vol. 17, p. 49 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 54 (1910).
- Macroptera**, Becker (not Lioy, 1864, which is *Ula*, Tipulidæ), Wien. Ent. Zeit. Vol. 8, p. 80 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 252 (1903).

Characters. — Black, shining, slender, nearly bare species with slender, long legs and cuneate wings. Head spherical, eyes large, the forward facets coarse, broadly contiguous above the antennæ thus obliterating the front, but widely separated below the antennæ, the face very short, the epistome large, filling in the oral opening to the very narrow cheeks; proboscis slender, shorter than the head-height, inflexed, the palpi minute, slender, setulose. Antennæ three-jointed, inserted below the middle of the head, the second joint without lengthened setæ, the third joint elongate, straight above, rounded below, long ham-shaped, the two-jointed terminal arista closely and briefly pubescent. One supraalar bristle, six scutellars, sparse biseriate acrostichal setulæ present, the hairs of the posterior part of the mesonotum proclinate, of the anterior part reclinate as usual; pleuræ shining, the metapleuræ velvety. Last abdominal segments of the female protractile, pygidium globular and complexly forcipate above. Legs simple, the middle femora with biseriate weak setulæ and the front tibiæ with weak extensor setulæ, middle tibiæ as long as their femora, front metatarsi of the male with long flexor hairs, no true bristles present, tibiæ without apical spur or spines. Wings with long slender base, costa not thickened and with a small basal bristle, the first vein ending beyond the middle of the wing, pedicel of the second and third veins long, crossveins meeting and nearly transverse, anal crossvein and outer part of anal vein present, anal angle very obtusely rounded and shallow.

Genotype : *S. dissimilis*, Fallen, is the unique species. It occurs from the Alps north to central Sweden.

Geographical distribution.

1. *S. dissimilis*, Fallen, Empid. Suec. p. 9 [1815] (*Tachydromia*); Meigen, Syst. Europe. Besch. Vol. 3, p. 85 [1822] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 308 [1842] (*Tachydromia*); Walker, List. Dipt. Brit. Mus. Vol. 3, p. 509 [1849] (*Platypalpus*); Zetterstedt, Dipt. Scand. Vol. 8, p. 3010 [1849] (*Tachydromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 133 [1851] (*Platypalpus*); Lundbeck, Dipt. Dan. Vol. 3, p. 284, f. 130 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 90 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 75 (1913).
- cyanophthalmus*, Strobl, Progr. Seitenst. Vol. 14, p. 8 [1880] (*Platypalpus*); Wien. Ent. Zeit. Vol. 10, p. 267 (1891); Mitteil. Nat. Ver. Steiermark, Graz, Vol. 29, p. 123 (1892).
- pietipes*, Becker, Wien. Ent. Zeit. Vol. 8, p. 80, f. 3-5 (*Macroptera*); ibidem, p. 285 (1889).

of the female entirely black, of the male the basal half of the femora yellow, the remainder of the hind legs blackish brown. Second vein very strongly curving forward, the first four sections of the costa proportioned 1 : 0.5 : 1.2 : 0.6, third vein uniformly diverging from the fourth, basal cells small and of equal extent along the fourth vein, hinder crossvein oblique, sections of the fourth vein, 1 : 3.5, of the fifth vein, 1 : 1.3.

One specimen of each sex, taken by C. T. Brues in grass sweepings along a ditch at Matucana, Peru, July 1, 1913.

13. GENUS MEGAGRAPHA, NOV. GEN.

Characters. — Small, stout, pubescent species with broad wings and large basal cells. Head globular, the occiput hemispherical, densely hairy above; eyes nearly contiguous above and beneath the antennæ, separating at the ocelli which are placed up toward the vertex and have small ocellar bristles, on the face the eyes broadly round away about one-third the distance from the antennæ, cheeks linear, pubescence of the eyes dense, facets uniform, hind margin of the eye S-shaped, excision at the antennæ small. Proboscis vertical, one-half the head-height, not thickened at the base, the palpi broadly oval, shorter than the proboscis, pubescent but without apical bristles. Antennæ three-jointed, without bristles, the third joint lanceolate, but flat above, densely pubescent, the arista terminal, shorter than the antennæ, without basal segment, thick with close pubescence. Thorax broadly quadrate, humeri not swollen, densely and uniformly pubescent, the hairs obliquely reclinate, no discal bristles, no humeral, about six short notopleural bristles in a prealar series diminishing in size toward the front, one pair of widely separated prescutellar dorsocentrals, scutellum large, rounded triangular, flat above, with close short pubescence above and below and with six marginal bristles; pleuræ bare except for a velvety patch of tomentum on the metapleuræ before the halteres. Abdomen short and broadly conical, comprising seven segments and the lengthened ovipositor which latter terminates in two slender styles, basal ventral segments not chitinized, abdomen hairy especially toward the end, the first segment not broadly swollen at the sides as is usually the case in the pale-colored species of *Drapetis*. Legs slender and short, without bristles but with abundant hairs, no tibial spurs, the hind tibiæ seriatly spinulose on the extensor side, last tarsal joint small, pulvilli minute. Wings broad, the anal angle broadly rounded, costa not swollen, first vein ending at the middle of the wing, pedicel of the second and third veins long, basal cells large and of the same length, anal crossvein wanting, but the anal vein present close to the hind margin, no costal bristles but the marginal cilia longer toward the root of the wing.

Type species : *M. (Drapetis) pubescens*, Loew, the only species so far known. I know of but four specimens of this species, all females, from Georgia, New York and Massachusetts.

Geographical distribution.

1. *M. pubescens*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 201 : Cent. 2, No. 57 E. United States.
[1862] (*Drapetis*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 210,
340 [1902] (*Drapetis*). — Pl. 4, Fig. 33.

14. GENUS STILPON, LOEW

Stilpon, Loew, Neue Beitr. Dipt. Vol. 6, p. 34 (1859); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 125 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390 (1895); Williston, Man. N. Amer. Dipt. p. 75 (1896); Melander, Trans. Ent. Soc. Vol. 28, p. 205 (1902); Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 42 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 257, 261 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Kertész, Cat. Dipt. Vol. 6, p. 134 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 609 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 260 (1910); Melander, Psyche, Vol. 17, p. 49 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 46 (1910).

Agatachys, Meigen, Syst. Besch. Vol. 6, p. 343 (1830); Scudder, Nomencl. p. 10 and Univ. Index, p. 9 [1882] (*Agatashys*); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 504 (1910).

Tetraneurella, Dahl, Sitzgber. Ges. Naturf. Freunde, Berlin, p. 362 (1909).

Characters. — Minute species, scarcely over one millimeter in length. Head large, globular, the eyes densely short-pubescent, enlarged below, obliterating the face, the lower facets large in both sexes, hind margin of the eye curving forward below, front narrow, its sides parallel, ocellar bristles small, two small vertical bristles present, cheeks narrow. Antennæ short, the first joint vestigial, the second joint swollen, with setæ beneath, the third joint very short and round, with a dorsal geniculate arista, or rather, there is a short dorsal process arising from the third joint which bears the single-jointed arista. Proboscis short, vertical, palpi slender, with a strong apical bristle. Thorax broadly round, the dorsum moderately convex, shining or slightly pollinose in front, no discal bristles, but the hairs seriatly arranged to form two acrostichal and one dorsocentral rows, one humeral bristle present, two notopleurals, no prescutellar, two scutellars; pleuræ bare and shining, the metapleuræ velvety. Abdomen without pits, comprising eight segments; the pygidium large and forcipate. Legs short, the front pair robust, in the males of some species the middle legs are ornamented and the hind legs are ciliate with long bristles, middle femora with a preapical bristle, no tibial apical spines. Wings narrow, first and second veins very short, third and fourth veins diverging, anal cell entirely wanting, costal bristle small.

Nomenclature. — Concluding his description of *Tachydromia celeripes*, Meigen stated that he had received «mehrere Exemplare von Herrn von Winthem, unter dem Namen *Agatachys flavipes*.» This induced Coquillett to adopt the name *Agatachys* for this genus. The catalogues have considered *Agatachys* as a manuscript name and as a synonym of *Stilpon*. While it is unfortunate that Loew overlooked Meigen's *celeripes* and Winthem's generic name when he formed the genus *Stilpon*, yet his name is so well known that it seems an unnecessary perversion of the rules to make Meigen the unwitting sponsor of *Agatachys* in order to have it established.

The genus *Tetraneurella* of Dahl represents a curious form with reduced venation. Dahl now believes that his specimens lacking the second vein are dimorphic individuals of *graminum*. The American species, *pleuritica*, here described, also lacks the second vein, but is certainly specifically different from any of the other known species of *Stilpon*. The short V-shaped front suggests *Drapetis*, but the antennæ are two-jointed and bear a dorsal arista, as in *Stilpon*.

Type species of *Stilpon*, *S. graminum*, Fallen (Pl. 4, Fig. 37), by Coquillett's designation in 1903.

SYNOPSIS OF THE AMERICAN SPECIES OF STILPON

1. Pleuræ opaque pollinose except a circular spot filling the sterno-pleura; second vein wanting; legs yellow, the hind femora brown on the apical third *ST. PLEURITICA*, nov. sp. (1).
- Pleuræ largely polished; second vein complete, ending in the costa about midway between the first and third veins 2.

(1) *Stilpon pleuritica*, nov. sp. — Female. Length 1 mm. Black, the abdomen testaceous, legs yellow, the outer third of the hind femora brown, mesonotum lightly pollinose, pleuræ brown-pollinose except a circular spot covering the sternopleuræ; second vein wanting. Head large, front relatively short, V-shaped, narrowed below, lightly pollinose like the vertex; antennæ uniformly testaceous; proboscis brown, palpi yellow with a small apical black bristle. Humeral bristle strong, notal hairs very short and sparse; lower part of the metapleuræ shining; one strong preapical bristle on the middle femora; hind metatarsi and last tarsal joint not darkened. Halteres entirely pale yellow. Wings with a slight infumation, the third and fifth veins more strongly bordered, veins brown becoming pale at their base, only a minute basal spur of the second vein remaining, proximal section of the fifth vein slightly shorter than the distal section.

A single specimen from Mrs. Annie T. Slosson, collected in the White Mountains, New Hampshire. This is a *Tetraneurella* form. The V-shaped front and pollinose pleuræ are different from the characters of the other species of *Stilpon*.

2. Outer half of the hind femora brown, front tibiæ brown except at the base, hind tibiæ wholly brown, last tarsal joint black; abdomen testaceous; veins largely bordered with brown. ST. VARIPES, Loew.
 Legs entirely yellow, except sometimes the hind metatarsi and last tarsal joint brownish 3.
3. Spine-like bristles of the under side of the middle femora ♂ black, spines of the middle tibiæ ♂ stronger near the middle of the tibiæ; upper side of hind femora ♂ setose near the middle; hind metatarsi brown 4.
 Spine-like bristles of the under side of middle femora ♂ yellow; spines of the middle tibiæ ♂ uniform to the end; extensor setæ of the hind femora ♂ not developed, or stronger apically 5.
4. Hind femora not distorted, their lower bristles in two rows, those of the outer half long and conspicuous, upper side of the hind femora with weak bristles only; hind tibiæ externally pectinate; abdomen black ST. SPINIPES, nov. sp. (1).
 Hind femora ♂ with a strong bend at the middle, before which is a dorsal row of strong curved bristles, the under side with a single row of bristles, denser on the basal half: hind tibiæ not pectinate; abdomen testaceous ST. CURVIPES, nov. sp. (2).
5. Hind tibiæ ♂ with long dense hairs on the anterior face, flexor bristles of the hind femora closely set; two or three preapical

(1) *Stilpon spinipes*, nov. sp. — Male. Length 1.3 mm. Black, the legs yellow, but the last tarsal joint black. Occiput very lightly pollinose, ocellar bristles minute, front subshining, palpi and proboscis yellow, base of the antennæ yellow, the last joint black. Thorax shining, very lightly pollinose in front, acrostichal hairs wanting on the posterior half of the dorsum, one row of seven dorsocentral hairs, scutellum with two bristles. Abdomen black, the last segment with four long black hairs, the pygidium large, forcipate. Front femora with a row of pale flexor bristles, under side of the middle femora with four stiff black spines located near the beginning of the outer third but without pale basal spines, middle tibiæ with a cluster of six contiguous black flexor spines engaging those of the femora and with about five additional black spines occupying the distal third, a strong preapical bristle on the middle femora, hind femora doubly pectinate on the antero-flexor side, the upper row with fourteen pale bristles extending the whole length of the femur, the lower row of eight longer dark bristles occupying the distal half, a row of smaller erect extensor bristles on the basal half of the hind femora, hind tibiæ loosely pectinate on the extensor side, extensor side of the anterior tibiæ and the hind knees a little dusky. Halteres brown. Wings smoky, the second vein ending beyond the middle of the wing, the second, third and fourth sections of the costa subequal, sections of the fifth vein proportioned nearly 1 : 2.

One specimen, Waycross, Georgia.

The species is closely related to *pectiniger*, differing mainly in the structure of the legs. The male of *pectiniger* has a single row of shorter bristles on the antero-extensor edge of the hind femora, the bristles of the hind tibiæ shorter, the flexor spines of the middle femora silky yellow and those of the middle tibiæ forming a uniform row along the distal three-fourths.

(2) *Stilpon curvipes*, nov. sp. — Male. Length 1 mm. Head, thorax and pygidium shining black; abdomen testaceous; legs including the coxæ light yellow, the hind metatarsi and last tarsal joint darkened. Basal joint of the antennæ yellow, outer joint broken, mouthparts yellow, front cinereous almost to the ocelli. Hairs of the thorax coarse, pleuræ mostly shining; the inflated sides of the first abdominal segment black and pollinose. Pygidium rather large, pollinose below, with a long slender apical process bearing four long hairs, the last abdominal segment fringed with long loose black hairs. Middle femora with an interrupted flexor row of black thorn-like setulæ along the basal three-fifths and with a long preapical bristle, middle tibiæ with a similar but double row along the outer half, hind femora with a strong lateral bend just beyond the middle, before the bend with a row of extensor bristles, beyond it the extensor bristles are irregular, underneath with a row of fourteen coarse bristles, of which eight are before the bend, hind tibiæ ciliate with twelve hairs along the antero-extensor edge. Halteres black. Wings narrowly oval, veins brown, very slightly bordered with brown, the second, third and fourth sections of the costa proportioned 1 : 0.8 : 0.6, fourth vein with a very slight anterior curvature, almost straight, posterior crossvein oblique, forming an angle of fifty degrees with the fifth vein, sections of the fifth vein proportioned 0.8 : 1, marginal cilia two-thirds as long as the posterior crossvein.

One specimen, Wisconsin, July.

bristles on the middle femora; hind metatarsi brown; veins light brown, wings not clouded; pollen of the front extending to the ocelli

ST. PECTINIGER, Melander.

Hind tibiae not pectinate; about eight flexor bristles on the hind femora ♂; a single preapical bristle on the middle femora; metatarsi yellow; veins dark, wings lightly clouded in the middle; front pollinose only near the antennae.

ST. PAUCISETA, nov. sp. (1).

Geographical distribution.

1. *St. celeripes*, Meigen, Syst. Besch. Vol. 6, p. 343 [1830] (*Tachydromia*); C. Europe.
ibidem, Vol. 7, p. 95 [1838] (*Tachypeza*); Neuhaus, Dipt. March.
p. 75 [1886] (*Drapetis*).
flavipes, Winthem, in litt., Meigen, Syst. Besch. Vol. 6, p. 343 [1840]
(*Agatachys*).
2. *St. curvipes*, nov. sp. Wisconsin.
3. *St. graminum*, Fallen, Empid. p. 15 [1815] (*Tachydromia*); Meigen, Syst.
Besch. Vol. 3, p. 72 [1822] (*Tachydromia*); Haliday, Ent. Mag.
London, Vol. 1, p. 161 [1833] (*Tachypeza*); Walker, ibidem, Vol. 3,
p. 180 [1835] (*Tachypeza*); Meigen, Syst. Besch. Vol. 7, p. 95 [1838]
(*Tachypeza*); Zetterstedt, Dipt. Scand. Vol. 1, p. 320 [1842] (*Tachy-
peza*); Walker, List Dipt. Brit. Mus. Vol. 3, p. 507 [1849] (*Tachy-
dromia*); Zetterstedt, Dipt. Scand. Vol. 8, p. 3011 [1849] (*Tachypeza*);
Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 59 (1851); Walker,
Ins. Brit. Dipt. Vol. 1, p. 136 [1851] (*Drapetis*); Loew, Neue Beitr.
Dipt. Vol. 6, p. 43 (1859); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1,
p. 154 [1861] (*Tachypeza*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 95
[1862] (*Drapetis*); Raddatz, Arch. Ges. Freunde Naturg. Mecklemb.-
Rostock, Vol. 27, p. 44 [1873] (*Drapetis*); Lundbeck, Dipt. Dan.
Vol. 3, p. 262, f. 118, 119 (1910); Wahlgren, Ent. Tidskr. Vol. 31,
p. 87 (1910); Dahl, Fauna Chorin, 465 (1912); Frey, Acta Soc. Sc.
Fenn. Helsingfors, Vol. 37 (3), p. 71 (1913). — **Pl. 4, Fig. 37.**
var. *Becheri*, Dahl, Sitzgber. Ges. Naturf. Freunde, Berlin, p. 362 [1909] (*Tetra-
neurilla*); Fauna Chorin, p. 465 (1912). Germany.
4. *St. lunata*, Walker, Ins. Brit. Dipt. Vol. 1, p. 136, pl. 5, f. 3 [1851] C. Europe.
(*Drapetis*); Loew, Neue Beitr. Dipt. Vol. 6, p. 43 (1859); Schiner,
Fauna Dipt. Austr. Vol. 1, p. 95 [1862] (*Drapetis*); Mik, Wien. Ent.
Zeit. Vol. 19, p. 145, note (1900).
femorata, Heeger, Sitzgber. Akad. Wiss. Wien, Vol. 9, p. 779-781, pl. 55,
f. 1-5 [1852] (*Hammerodromia*).
5. *St. obscuripes*, Adams, Kansas Univ. Sc. Bull. Vol. 3, p. 156 (1905). Rhodesia.
6. *St. pauciseta*, nov. sp. E. United States.

(1) *Stilpon pauciseta*, nov. sp. — Male. Length 1 mm. Shining black, the abdomen more piceous, legs entirely yellow. Front pollinose only near the antennae, mouthparts yellow, the palpi with a conspicuous black bristle, basal joints of the antennae yellow, the apical joint small, dusky, the long arista microscopically but closely hairy. Notal hairs rather long; pleurae pollinose in back. Last segment of the abdomen with a loose fringe of long black hairs, pygidium large, lightly pollinose below, apically with a pair of long thin clavate plate-like valves, devoid of long hairs. Front femora ciliate apically, middle femora beneath near the middle with a row of yellow thorn-like setulae and preapically with one or two black bristles, middle tibiae with a close row of black thorns along the outer three-fifths, hind femora with a loose row of about eight strong flexor bristles, hind tibiae not pectinate. Halteres black. Wings with a light infumation, veins dark, the second, third and fourth sections of the costa proportioned 1 : 0.7 : 0.8, fourth vein nearly straight, posterior crossvein nearly perpendicular, sections of the fifth vein proportioned 1 : 0.9, marginal cilia nearly as long as the posterior crossvein.

Female. Abdomen more or less testaceous. Halteres yellow to brown, hind femora with a few flexor hairs, legs otherwise devoid of the sexual ornamentation along the flexor side.

Seven specimens, Dorchester County, Maryland (H. S. Barber) and Woods Hole, Massachusetts, July.

7. *St. pectiniger*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 205, f. 4, 5 E. United States.
(1902).
8. *St. pleuritica*, nov. sp. New Hampshire.
9. *St. spinipes*, nov. sp. Georgia.
10. *St. varipes*, Loew, Berl. Ent. Zeitschr. Vol. 6, p. 211 : Cent. 2, No. 58 E. United States.
(1862); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 205 (1902).

15. GENUS DRAPETIS, MEIGEN

- Drapetis**, Meigen, Syst. Besch. Vol. 3, p. 91 (1822); Curtis, Brit. Ent. Vol. 8, p. 397 (1824); Macquart, Dipt. N. France, Vol. 3, p. 87 (1827); Hist. Nat. Dipt. Vol. 1, p. 357 (1834); Zetterstedt, Fauna Ins. Lapon. p. 553 (1838); Westwood, Gen. Syn. p. 132 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 327 (1842); Boitard, Man. N. Amer. Dipt. Vol. 3, p. 325 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 135 (1851); Rondani, Dipt. Ital. Vol. 1, p. 147 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 564 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 95 (1862); Lioy, Atti Inst. Sc. Veneto, Venezia, 1864, p. 603 (1864); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 125 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390 (1895); Williston, Man. N. Amer. Dipt. p. 75 (1896); Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 43 (1902); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 206 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 248, 261 (1903); Bezzi, Wien. Ent. Zeit. Vol. 23, p. 143-146 (1904); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 320, 350 (1904); Melander, Williston's Man. N. Amer. Dipt. p. 223 (1908); Kertész, Cat. Dipt. Vol. 6, p. 129 (1909); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 300, 397 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 535 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 252 (1910); Melander, Psyche, Vol. 17, p. 49 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 46, 86 (1910); Melander, Ann. Amer. Ent. Soc. Vol. 11, p. 183-221 (1918); Brunetti, Fauna Brit. India Dipt. Vol. 1, p. 380 (1920).
- Crossopalpus**, Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 557, 563 (1857); Scudder, Nomencl. p. 149 [1882] (*Grossopalpus*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 248 (1903); Proc. U. S. Nat. Mus. Vol. 37, p. 528 (1910).
- Ctenodrapetis**, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 351, 357, note (1904); Melander, Psyche, Vol. 17, p. 49 (1910); Ann. Ent. Soc. Amer. Vol. 11, p. 187 (1918).
- Elaphropeza**, Macquart, Dipt. N. France, Vol. 3, p. 86 (1827); Hist. Nat. Dipt. Vol. 1, p. 359 (1834); Westwood, Gen. Syn. p. 132 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 326 (1842); Boitard, Man. Ent. Vol. 3, p. 325 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 134 (1851); Rondani, Dipt. Ital. Vol. 1, p. 147 (1856); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 564 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 94 (1862); Lioy, Atti Inst. Sc. Veneto, Venezia, 1864, p. 722 (1864); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 122 (1889); Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 43 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 249, 261 (1903); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 321, 346 (1904); ibidem, Vol. 5, p. 567 (1907); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 537 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 272 (1910); Melander, Psyche, Vol. 17, p. 49 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 45 (1910); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 478 (1912); Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 187 (1918); Brunetti, Fauna Brit. India Dipt. Vol. 1, p. 384 (1920).
- Eudrapetis**, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 187 (1918).

Characters. — Head globular, sometimes slightly longer than high, the occiput more or less hemispherical; eyes large, bare, at most with scattered microscopic hairs, the facets of uniform size, beneath the antennæ the eyes of both sexes nearly touching, leaving the face linear or very narrow, above the eyes the front is V-shaped, always broader than the face, sometimes the front is quite narrow; three small ocelli present. Excision of the eyes at the level of the antennæ very large; cheeks sometimes entirely obliterated, usually about one-eighth the height of the eye, with the oral margin obliquely descending posteriorly. Proboscis thick, rather sharply pointed, perpendicular or directed backward, averaging one-half the height of the head, its labrum with prominent base and as long as the labium; palpi broadly oval, one-jointed, applied to the proboscis, the inside glabrous and shining, the outside pollinose and with more or less evident recumbent pubescence, generally tipped with a longer seta. Antennæ inserted close together a little above the middle of the head, three-jointed, very rarely the basal joint is wanting, the second joint with a circle of small setulæ, the bottom hair of which is sometimes long, the third joint compressed, varying from short oval, not longer than deep and with subterminal arista, to lanceolate or conical, nearly twice as long as deep and with terminal arista; the arista usually slender, nearly bare, two-jointed, its basal joint small, its outer joint two or three times as long as the antennæ, rarely the hairy coating is dense and longer so as to give a thickened appearance to the arista. Occiput often with a pollinose band on the lower orbits including the cheeks excepting their lower margin, usually with sparse short hairs, typically a pair of ocellar and one of vertical bristles present, rarely two or three pairs of vertical and an additional pair of post-vertical bristles present, sometimes an oral bristle on the back part of the cheeks.

Thorax robust, polished, nearly bare to pubescent, dorsocentral bristles usually limited to a pair of prescutellars, humeral and posthumeral bristles present or absent, notopleural bristles present but variable, scutellum with two or four marginal bristles, the lateral ones always shorter; pleuræ bare, rarely with pollinose streaks following the sutures. Abdomen with eight segments, the first segment laterally inflated, the fourth segment usually large and more heavily chitinized than the others, its sides often pollinose and bearing scimitar-shaped, glistening setulæ, the fifth segment short; pygidium varying from small to large, closed to widely open, asymmetrical, the right side usually with a broad, curved, furcate valve. Legs rather stout, the front femora a little the strongest, usually the anterior femora with a basal flexor hair and with a preapical bristle on the outer side, the hind femora with one to three preapical bristles on the anterior face, hind tibiæ with extensor bristles and more or less produced as an apical tooth-like spur, the anterior tibiæ with a pair of apical bristles; sometimes the legs are devoid of all bristles; pulvilli broad; in those species with broad tibial spur the inside of the hind metatarsi and of the end of the hind tibiæ spongy pubescent.

Wings with anal angle more or less developed, except very rarely the first basal cell shorter than the second which is always fused with the discal cell, five simple longitudinal veins, anal cell completely wanting, at most a short trace of the anal vein present toward the hind margin but the anal crossvein always lacking, usually the entire margin of the wing uniformly short-ciliate, sometimes the hairs of the first section of the costa are longer, no stigma and no definite color pattern.

The species of *Drapetis* are included in the following subgenera :

1. SUBGENUS DRAPETIS, MEIGEN, S. STR.

Type species : *Dr. exilis*, Meigen. Rather small, bristleless, black species, with short antennæ directed somewhat upward, the second joint without a conspicuous seta beneath, the third joint oval, with long, subterminal arista; legs without strong bristles, the hind tibiæ without the terminal spur; notum densely short-pubescent, the hairs appressed, no humeral or discal bristles; wings broad, costa short-pubescent, third vein sometimes curved forward; halteres usually black.

The genus *Crossopalpus*, Bigot, was founded on *Platypalpus ambiguus*, Macquart, which is regarded as the same species as *Drapetis flavipes*, Macquart, and therefore it is synonymous with this subgenus.

2. SUBGENUS EUDRAPETIS, MELANDER

Type species : *E. spectabilis*, Melander (Pl. 4, Fig. 34). Robust, larger species, more or less bristly and black; antennæ longer, directed obliquely upward, the second joint with a pronounced seta beneath, the third joint ovate to lanceolate, with a long terminal arista; femora with preapical bristles, anterior tibiæ with apical bristles and the hind ones with a more or less evident terminal spur and usually with extensor or apical bristles; humeral, and sometimes discal bristles (e. g. posthumeral, supraalar and anterior dorsocentrals) present; wings broad, costa short-pubescent, third vein straight or recurved; halteres yellow.

3. SUBGENUS ELAPHROPEZA, MACQUART

Type species : *E. ephippiata*, Fallen. Usually yellow, sometimes black species; antennæ elongate, horizontal, the second joint without seta beneath, the third joint lanceolate, two or more times the length of the first two joints together, the terminal arista relatively short, sometimes no longer than the antennæ; abdomen broad, the middle segment with flattened setulæ; legs slender, the hind tibiæ with extensor bristles and with a more or less evident terminal spur; wings narrower, the hairs of the base of the costa longer than elsewhere.

4. SUBGENUS CTENODRAPETIS, BEZZI

Type species : *Ct. ciliatocosta*, Bezzi. Body slender, elongate, usually yellow, the abdomen longer than the thorax; antennæ elongate, horizontal, the second joint without seta, the third joint lanceolate with relatively coarsely pubescent terminal arista; legs slender, with bristles and a long terminal spur on the hind tibiæ; wings long, narrow, cuneate, the costal margin with long cilia.

* * *

The species of *Drapetis* are æstival and occur in meadowlands and among shrubbery. The developmental stages are unknown. In the tropics yellow-colored species predominate, but in the Temperate Zone the general species are black and more robust. Here the species are found during the spring and summer, sometimes swarming about flowers like wild cherry and plum, and sometimes running about singly over grass and low shrubbery. A synopsis of the American species of *Drapetis* was given by the writer in the June, 1918, issue of the « Annals of the Entomological Society of America ». The preceding generic characterization is taken from this account.

Geographical distribution.

SUBGENUS DRAPETIS, MEIGEN, S. STR.

1. *D. aliternigra*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 192 (1918). North America.
nigra, Melander (not Meigen), Trans. Amer. Ent. Soc. Vol. 28, p. 208,
f. 12, 17, 24 (1902); Lundbeck, Dipt. Dan. Vol. 3, p. 257, note (1910);
Malloch, Bull. Illinois Labor. Nat. Hist. Urbana, Vol. 12, Art. 3, p. 403
(1917) larva, pupa.
2. *D. assimilis*, Fallen, Dipt. Suec. Emp. p. 8, 34 [1815] (*Tachydromia*); Europe, ?North America.
Walker, Ins. Brit. p. 136 (1851); Schiner, Fauna Dipt. Austr.
Vol. 1, p. 95 (1862); Lundbeck, Dipt. Dan. Vol. 3, p. 256, f. 115
(1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 87 (1910); Frey, Acta

- Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 71, f. 19 (1913); Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 187 (1918).
- affinis*, Loew, Neue Beitr. Dipt. Vol. 6, p. 41 (1859).
- arcuata*, Loew, ibidem, Vol. 6, p. 40 (1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 96 (1862); Wahlgren, Ent. Tidskr. Vol. 31, p. 87 (1910); Kuntze, Deutsche Ent. Zeitschr. p. 548 (1913).
- minima*, Meigen (not Zetterstedt), Syst. Besch. Vol. 7, p. 100 (1838).
- nigra*, Meigen, ibidem, Vol. 6, p. 344 (1830); Curtis, Brit. Ent. Vol. 8, p. 397 (1832); Macquart, Hist. Nat. Dipt. Vol. 1, p. 358 (1834); Walker, List. Dipt. Brit. Mus. Vol. 3, p. 511 (1849), oc. in Canada; Ins. Brit. Vol. 1, p. 136 (1851).
- pygmaea*, Roser, Correspondenzbl. Landw. Ver. Würtemb. Stuttgart, Vol. 1, p. 54 (1840).
3. *D. bispina*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 192 (1918). Indiana.
4. *D. brevior*, Brunetti, Rec. Indian Mus. Vol. 9, p. 37 (1913); Fauna Brit. India Dipt. Vol. 1, p. 382, pl. 4, f. 23, 24 (1920). India.
5. *D. *decolorata*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 95 (1908). Baltic Amber.
6. *D. distans*, Bezzi, Wien. Ent. Zeit. Vol. 23, p. 144 (1904); Ann. Mus. Hungar. Vol. 10, p. 480 (1912). New Guinea.
- divergens*, Bezzi (not Loew), Ann. Mus. Hungar. Vol. 2, p. 353 (1904).
7. *D. divergens*, Loew, Berl. Ent. Zeitschr. Vol. 16, p. 90 : Cent. 10, No. 62 (1872); Melander, Trans. Amer. Ent. Vol. 28, p. 210, f. 15 (1902); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 397 (1909). S. United States, West Indies.
- minuta*, Williston, Trans. Ent. Soc. London, Vol. 3, p. 442, f. 168 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 210 (1902).
8. *D. diversa*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 193 (1918). New Mexico.
9. *D. dividua*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 208, pl. 5, f. 16, 18, 23 (1902). W. North America.
- nigripes*, Melander, ibidem, Vol. 28, p. 339 [1902] (*Stilpon*).
10. *D. exilis*, Meigen, Syst. Besch. Vol. 3, p. 91, pl. 23, f. 25-28 (1822); Serville & Lepeletier, Encycl. Méth. Vol. 10, p. 437 (1825); Macquart, Dipt. N. France, Vol. 3, p. 88, part, pl. 2, f. 2 (1827); Meigen, Syst. Besch. Vol. 6, p. 344 (1830); Curtis, Brit. Ent. Vol. 8, p. 397, part (1832); Macquart, Hist. Nat. Dipt. Vol. 1, p. 357, part, pl. 8, f. 12a (1834); Zetterstedt, Fauna Ins. Lappon. p. 554 (1838); Loew, Bemerk. Posen Gegend Art. Zweifl. Gatt. p. 23 (1840); Isis, Vol. 7, p. 552 (1840); Zetterstedt, Dipt. Scand. Vol. 1, p. 328 (1842); Boitard, Man. Ent. Vol. 3, p. 325 (1843); Walker, List Dipt. Brit. Mus. Vol. 3, p. 511, part (1849); Zetterstedt, Dipt. Scand. Vol. 8, p. 3012 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 60 (1851); Walker, Ins. Brit. Dipt. Vol. 1, p. 136 (1851); Loew, Neue Beitr. Dipt. Vol. 6, p. 42 (1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 95 (1862); Lundbeck, Dipt. Dan. Vol. 3, p. 258, f. 116 (1910). Europe.
11. *D. fascifemorata*, Brunetti, Rec. Indian Mus. Vol. 9, p. 38 (1913); Fauna Brit. India Dipt. Vol. 1, p. 383 (1920). Formosa.
12. *D. femorata*, Melander, Ann. Soc. Ent. Amer. Vol. 11, p. 215 (1918). Formosa.
- femoralis*, Bezzi (not Wheeler & Melander), Ann. Mus. Hungar. Vol. 10, p. 480, 483 (1912).
13. *D. flavicornis*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 193 (1918). Panama.
14. *D. flavipes*, Macquart, Hist. Nat. Dipt. Vol. 1, p. 357 (1834); Meigen, Syst. Besch. Vol. 7, p. 100 (1838); Boitard, Man. Ent. Vol. 3, p. 325 (1843); Loew, Neue Beitr. Dipt. Vol. 6, p. 38 (1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 95 (1862); Strobl, Mitteil. Nat. Ver.

Steiermark, Graz, Vol. 29, p. 108 (1892); Bezzi, Arch. Zool. Expér. Paris (5), Vol. 8, p. 50 (1911).

? *ambigua*, Macquart, Dipt. N. France, Vol. 3, p. 94 [1827] (*Platypalpus*); Hist. Nat. Dipt. Vol. 1, p. 351 (1834); Schiner, Fauna Dipt. Austr. Vol. 1, p. 92 (1862).

? *curvipes*, Meigen, Syst. Besch. Vol. 3, p. 75 [1822] (*Tachydromia*).

exilis, Macquart, Dipt. N. France, Vol. 3, p. 88, part (1827).

fascipes, Roser, Correspondenzbl. Landw. Ver. Würtemb. Stuttgart, Vol. 1, p. 54 (1840).

nigra, Fallen, Dipt. Suec. Emp. p. 8 [1815] (*Tachydromia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 90 [1862] (*Platypalpus*).

15. *D. inermis*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 194 (1918). Panama.
16. *D. infumata*, Melander, ibidem, Vol. 11, p. 194 (1918). British Columbia.
17. *D. levis*, Becker, Ann. Mus. Zool. Acad. Sc. St. Pétersb. Vol. 18, p. 84 (1913). N. Africa.
18. *D. latipennis*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 209, pl. 5, f. 11. 19 (1902); Ann. Ent. Soc. Amer. Vol. 11, p. 189 (1918). C. United States.
19. *D. micropyga*, Melander, ibidem, Vol. 11, p. 195 (1918). W. United States.
20. *D. *mortua*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 97 (1908). Baltic Amber.
21. *D. naica*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 195 (1918). W. United States.
22. *D. nigripes*, Zetterstedt, Dipt. Scand. Vol. 13, p. 4997 (1859); Wahlgren, Ent. Tidskr. Vol. 31, p. 87 (1910). N. Europe.
23. *D. pilosa*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 196 (1918). C. United States.
24. *D. procurrens*, nov. sp. (1). Costa Rica.
25. *D. pusilla*, Loew, Neue Beitr. Dipt. Vol. 6, p. 36 (1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 96 (1862); Becker, Mitteil. Zool. Mus. Berlin, Vol. 4, p. 42 (1908); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 179 (1909); Lundbeck, Dipt. Dan. Vol. 3, p. 259, f. 117 (1910); Dahl, Fauna Chorin, p. 465 (1912); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 71 (1913). C. & N. Europe, Canary Islands.
- exilis*, Zetterstedt (not Meigen), Fauna Ins. Lappon. p. 554, part (1838); Dipt. Scand. Vol. 1, p. 328 (1842); ibidem, Vol. 8, p. 3012 (1849).
- minima*, Zetterstedt (not Meigen), Dipt. Scand. Vol. 1, p. 327 (1842).
- var. *fumipennis* Strobl, Mem. Soc. Esp. N. Hist. Vol. 3, p. 312 (1906). Spain.
26. *D. rotundicornis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 38 (1913); Fauna Brit. India, Dipt. Vol. 1, p. 383, pl. 4, f. 25 (1920). India.
27. *D. rufipes*, Brunetti, Rec. Indian Mus. Vol. 9, p. 38 (1913); Fauna Brit. India, Dipt. Vol. 1, p. 383 (1920). Bengal.
28. *D. setulosa*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 196 (1918). W. North America.
29. *D. trichura*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 197 (1918). Texas.
30. *D. xanthopyga*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 352 (1904). Vol. 10, p. 479, 485 (1912). New Guinea.

(1) ***Drapetis* (s. str.) *procurrens***, nov. sp. — Male. Length 1.4 mm. Body including pleuræ shining black, hairs and bristles of head and thorax black, legs entirely yellow, unarmed, third vein diverging from fourth, antennæ yellowish. Front rather narrowly V-shaped; face obliterated except at clypeus; third antennal joint slightly darkened, triangular, nearly two times long as broad, the blackish arista micropubescent but not as densely so as in *divergens*, two and one-half times length of antenna; palpi large, oval, whitish, proboscis dark. Thoracic pubescence closely and uniformly distributed, lateral scutellar bristles half length. Third abdominal segment chitinized laterally, with flattened setulæ, pygidium large, contorted, the valves terminally fringed, a long curled brown penis exerted. No pronounced bristles on legs, hind tibiae with small brush-like termination. Halteres yellow; calypteres dark, with black fringe. Wings hyaline, veins brown, third vein nearly uniformly diverging from fourth, the costal sections proportioned 1 : 2 : 1.5, sections of fourth vein, 1 : 0.7 : 4, of fifth vein, 1 : 0.9.

Holotype, received from Pablo Schild, La Suiza de Turrialba, Costa Rica.

SUBGENUS EUDRAPETIS, MELANDER

1. *E. aenea*, Walker, Entom. London, Vol. 5, p. 273 (1871). Egypt.
2. *E. aenescens*, Wiedemann, Aussereur. Zweifl. Ins. Vol. 2, p. 649 (1830); Europe, Africa, Asia.
 Loew, Neue Beitr. Dipt. Vol. 6, p. 35 (1859); Dipterenf. Südafr. p. 270 (1860); Schiner, Fauna Dipt. Austr. Vol. 1, p. 96 (1862); Giglio-Tos, Ann. Soc. Ent. France, Vol. 64, p. 359 (1895); Becker, Mitteil. Zool. Mus. Berl. Vol. 2, p. 40 (1902); Strobl, Glasnik Zem. Mus. Bosn. Herceg. Sarajevo, Vol. 14, p. 470 (1902); Mitteil. Bosn. Herceg. Sarajevo, Vol. 9, p. 528 (1904); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 351 (1904); Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 119 (1907); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 479, 482 (1912); Suppl. Ent. Berlin, Vol. 3, p. 75 (1914); Meijere, Tijdschr. Ent. Vol. 56, Suppl. p. 75 (1914).
 brunnipes, Macquart, Hist. Nat. Dipt. Vol. 1, p. 358 (1834); Meigen, Syst. Besch. Vol. 7, p. 101 (1838); Loew, Bemerk. Posen. Gegend Art. Zweifl. Gatl. p. 23 (1840); Isis, Vol. 7, p. 552 (1840); Boitard, Man. Ent. Vol. 3, p. 325 (1843); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 60 (1851).
 crassa, Loew, Oefv. Vet. Akad. Förhandl. Stockholm, Vol. 15, p. 341 (1858).
3. *E. angustata*, Collin, Ent. M. Mag. London, 699, p. 187 (1922). Seychelles.
4. *E. basalis*, Collin, ibidem, 699, p. 187 (1922). Seychelles.
5. *E. armata*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 197 (1918). United States.
6. *E. armipes*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 398, f. 18 (1909). Chile.
7. *E. aterrima*, Curtis, Brit. Ent. Vol. 8, p. 397, tab. (1832); Walker, Ins. Brit. Dipt. Vol. 1, p. 136 (1851); Loew, Neue Beitr. Dipt. Vol. 6, p. 40, note (1859); Lundbeck, Dipt. Dan. Vol. 3, p. 254, f. 111-113 (1910); Frey, Act. Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 68 (1913). N. & C. Europe.
 atra, Walker, Ins. Brit. Dipt. Vol. 1, pl. 5, f. 3g, h (1851).
 nervosa, Loew, Neue Beitr. Dipt. Vol. 6, p. 37 (1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 96 (1862).
 nigritella, Zetterstedt, Dipt. Scand. Vol. 1, p. 298 [1842] (*Tachydromia*).
8. *E. brevicula*, new name. Formosa.
 brevis, Bezzi (not Meunier), Ann. Mus. Hungar. Vol. 10, p. 480, 483 (1912).
9. *E. * brevis*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 96 (1908). Baltic Amber.
10. *E. * decorata*, Meunier, ibidem, Vol. 7, p. 96 (1908). Baltic Amber.
11. *E. discalis*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 198 (1918). W. United States.
12. *E. diversipes*, Melander, ibidem, Vol. 11, p. 198 (1918). California.
13. *E. dorsiseta*, Melander, ibidem, Vol. 11, p. 199 (1918). Costa Rica.
14. *E. facialis*, Melander, ibidem, Vol. 11, p. 200 (1918). Georgia, Alberta.
15. *E. femoralis*, Wheeler & Melander, Biol. Centr.-Amer. Dipt. Vol. 1, p. 376 (1901); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 211, f. 13 (1902); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 398 (1909). Mexico.
16. *E. fortis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 399 (1909). Peru.
17. *E. gilvipes*, Loew, Berl. Ent. Zeitschr. Vol. 16, p. 89 : Cent. 10, No. 61 (1872); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 213, 340 (1902); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 397 (1909). Texas, West Indies.
18. *E. humilis*, Frey, Act. Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 69, f. 16-18 (1913). Finland.
19. *E. inculta*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 439 [1896] (*Platypalpus*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 218 (1902); Ann. Ent. Soc. Amer. Vol. 11, p. 188 (1918). Texas, California.
20. *E. lata*, Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 266 [1903] (*Tachydromia*); Melander, Psyche, Vol. 17, p. 51 (1910); Ann. Ent. Soc. Amer. Vol. 11, p. 189 (1918). Florida.

21. *E. Loewi*, Dahl, Fauna Chorin, p. 465 (1912). Germany.
22. *E. luteipes*, Lapeletier & Serville, Encycl. Méthod. Vol. 10, p. 437 (1825). France.
23. *E. marginata*, Meigen, Syst. Besch. Vol. 7, p. 100 (1838). E. Europe.
24. *E. medetera*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 208, pl. 5, f. 22 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 265 [1903] (*Elaphropeza*); Melander, Ent. News, Philad. Vol. 17, p. 372 (1906); Bezzi, Ann. Mus. Hungar. Vol. 5, p. 567 [1907] (*Elaphropeza*); Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 189 (1918). W. United States.
25. *E. moriella*, Zetterstedt, Fauna Ins. Lappon. p. 552 [1838] (*Tachydromia*); N. and C. Europe.
Dipt. Scand. Vol. 1, p. 299 [1842] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 86, f. 15 (1910).
curvinervis, Zetterstedt, Dipt. Scand. Vol. 1, p. 301 [1842] (*Tachydromia*).
flexuosa, Loew, Bemerk. Posen Gegend Art. Zweifl. Gatt. 1840, p. 23 : Isis, Vol. 7, p. 552 (1840); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 60 (1851); Loew, Neue Beitr. Dipt. Vol. 6, p. 39 (1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 96 (1862).
geniculata, Fallen, Suec. Empid. 7, part [1815] (*Tachydromia*).
nigrq, Zetterstedt, Dipt. Scand. Vol. 1, p. 297 [1842] (*Tachydromia*); Bonsdorff, Finkl. tväv. Ins. Dipt. Vol. 1, p. 150 [1861] (*Tachydromia*).
picipes, Zetterstedt, Dipt. Scand. Vol. 1, p. 298 [1842] (*Tachydromia*).
var. *dilutipes*, Strobl, Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 312 (1906). Spain.
var. *setigera*, Loew, Neue Beitr. Dipt. Vol. 6, p. 39 (1859); Schiner, Fauna Dipt. Austr. Vol. 1, p. 96 (1862); Lundbeck, Dipt. Dan. Vol. 3, p. 255, f. 114 (1910); Frey, Act. Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 70 (1913). Europe.
26. *E. nitens*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 200 (1918). Mexico, Panama.
27. *E. nuda*, Melander, ibidem, Vol. 11, p. 201 (1918). Africa.
28. *E. obscuripennis*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 768 (1865); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 397 (1909). Chile.
29. *E. ædimera*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 201 (1918). Vera Cruz.
30. *E. parvicornis*, Melander, ibidem, Vol. 11, p. 202 (1918). Washington.
31. *E. pennescens*, Melander, ibidem, Vol. 11, p. 202 (1918). Peru.
32. *E. phaeoptera*, Bezzi, Wien. Ent. Zeit. Vol. 28, p. 145 (1904); Ann. Mus. Hungar. Vol. 10, p. 479 (1912). New Guinea.
obscuripennis, Bezzi (not Philippi), Ann. Mus. Hungar. Vol. 2, p. 351 (1904).
33. *E. pilipes*, Loew, Neue Beitr. Dipt. Vol. 6, p. 36 (1859); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 152 (1899); Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 40 (1902). S. Europe, N. Africa.
34. *E. plumipes*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 203 (1918). Texas.
35. *E. pubicornis*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 479, 482 (1912). Formosa.
36. *E. quadrisetosa*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 203 (1918). Mexico, Central America.
37. *E. scissa*, Melander, ibidem, Vol. 11, p. 204 (1918). W. United States.
medetera, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 208, part (1902).
Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 265 [1903] (*Elaphropeza*);
Melander, Ent. News, Philad. Vol. 17, p. 372, part (1906); Bezzi, Ann. Mus. Hungar. Vol. 5, p. 567 [1907] (*Elaphropeza*).
38. *E. septentrionalis*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 211 (1902); Michigan.
Ann. Ent. Soc. Amer. Vol. 11, p. 190 (1918).
var. *mexicana*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 204 (1918). Tampico.
39. *E. spectabilis*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 212, f. 9, 20 (1902); Ann. Ent. Soc. Amer. Vol. 11, p. 189, 190 (1918). — **Pl. 4, Fig. 34.** United States.
40. *E. spinipes*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 205 (1918). Africa.
41. *E. unipila*, Loew, Berl. Ent. Zeitschr. Vol. 16, p. 88 : Cent. 10. No. 60 (1872); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 211 (1902); Ent. News, Philad. Vol. 17, p. 372 (1906); Ann. Ent. Soc. Amer. Vol. 11, p. 188 (1918). W. United States.

- var. *nitida*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 207, 339, f. 10, 14, 21 (1902); Cole, Report Laguna Marine Labor. Vol. 1, p. 152 (1912); Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 188 (1918). W. United States.
42. *E. * vitiosa*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 96, pl. 3, f. 10-13 (1908). Baltic Amber.
43. *E. xanthopoda*, Williston, part, Trans. Ent. Soc. London, Vol. 3, p. 308, pl. 4, f. 85 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 212, 340 (1902); Ann. Ent. Soc. Amer. Vol. 11, p. 190 (1918). West Indies.
- flavipes*, Williston (not Macquart), Trans. Ent. Soc. London, Vol. 3, Appendix, p. 441, tab. (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 212 (1902).

SUBGENUS CTENODRAPETIS, BEZZI

1. *C. aristalis*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 205 (1918). — Philippine Islands.
Pl. 4, Fig. 36.
2. *C. ciliatocosta*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 355, f. 6 (1904); Nova Act. Akad. Naturf. Halle, Vol. 91, p. 397, 400 (1909); Ann. Mus. Hungar. Vol. 10, p. 481 (1912). Australia, South America.
3. *C. cuneipennis*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 206 (1918). Philippine Islands.
4. *C. discoidalis*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 355 (1904); ibidem, Vol. 10, p. 482 (1912); Brunetti, Fauna Brit. India Dipt. Vol. 1, p. 382 [1920] (*Drapetis*). East Indies.
5. *C. gracilis*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 354 (1904); ibidem, Vol. 10, p. 480 (1912). New Guinea.
6. *C. hamifera*, Bezzi, ibidem, Vol. 10, p. 479, 485 (1912). Formosa.
7. *C. monochaeta*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 401 (1909). Peru.
8. *C. rubrithorax*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 356 (1904); ibidem, Vol. 10, p. 482 (1912). New Guinea.
9. *C. strigifera*, Meijere, Tijdschr. v. Ent. Vol. 54, p. 333 (1911); ibidem, Vol. 56, Suppl. p. 75 (1914). Java.
10. *C. valdiviana*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 768 [1865] (*Drapetis*); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 397 [1909] (? *Ctenodrapetis*). Chile.

SUBGENUS ELAPHROPEZA, MACQUART

1. *E. abdominalis*, Wiedemann, Aussereur. Ins. Vol. 2, p. 12 [1830] (*Tachydromia*); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 359, note [1904] (*Tachydromia*); Melander, Psyche, Vol. 17, p. 52 [1910] (*Ctenodrapetis*). China.
2. *E. acrodactyla*, nov. sp. (1). Luzon.
3. *E. antennata*, Becker, Bul. Mus. Hist. Nat. Paris, p. 115 (1909); Ann. Soc. Ent. France, Vol. 79, p. 24 (1910); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 481 (1912). E. Africa.

(1) *Drapetis* (*Elaphropeza*) *acrodactyla*, nov. sp. — Female. Length 2 mm. Luteous, the occiput, linear front, third antennal joint, arista, broad third abdominal tergite, apex of hind tibiae within, and last joint of all tarsi black. Third antennal joint lanceolate, three times long as wide and five-ninths as long as the closely pubescent arista; palpi ovate. Posterior dorsocentral large, two scutellars, acrostichal and dorsocentral setulae totaling four distinct rows. Sides of black. abdominal band with many strong flattened black setulae. Two extensor bristles on hind tibiae. Wings hyaline, veins yellow, sections of costa proportioned 1 : 0.3 : 0.8 : 0.3, of fourth vein 1 : 1 : 3, of fifth vein 1 : 0.5, first posterior cell gently widening to tip, fourth vein ending slightly beyond apex of wing.

Two specimens, Mt. Makling, Luzon, C. F. Baker. Related to *formosa* Bezzi, but that species has the first posterior cell narrowing at the tip.

4. *E. baxis*, Walker, List Dipt. Brit. Mus. Vol. 3, p. 510 [1849] (*Platypalpus*); Jamaica.
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 439 [1896] (*Tachydromia*); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 226 [1902] (*Tachydromia*); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 460 [1905] (*Tachypeza*); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 402, note (1909); Melander, Psyche, Vol. 17, p. 52 [1910] (*Ctenodrapetis*).
5. *E. basalis*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 349 (1904); ibidem, Ceylon.
Vol. 5, p. 567 (1907); ibidem, Vol. 10, p. 479 (1912); Brunetti,
Fauna Brit. India Dipt. Vol. 1, p. 384 (1920).
6. *E. bicaudata*, nov. sp. (1). Luzon.
7. *E. bicolor*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 349 (1904); ibidem, New South Wales.
Vol. 5, p. 567 (1907); Vol. 10, p. 482 (1912).
8. *E. bicoloripes*, Brunetti, Rec. Indian Mus. Vol. 9, p. 43 (1913); Fauna E. Himalayas.
Brit. India Dipt. Vol. 1, p. 385 (1920).
9. *E. bihamata*, Bezzi, Ann. Mus. Nat. Hungar. Vol. 2, p. 353 [1904] New Guinea.
(*Drapetis*); Meijere, Tijdschr. v. Ent. Vol. 54, p. 332 [1911] (*Drapetis*);
Bezzi, Ann. Mus. Hungar. Vol. 10, p. 480 [1912] (*Drapetis*).
10. *E. binotata*, Meijere, Tijdschr. v. Ent. Vol. 54, p. 333 [1911] (*Drapetis*); Java.
ibidem, Vol. 56, Suppl. p. 74 (1913).
11. *E. biuncinata*, nov. sp. (2). Luzon.
12. *E. calcarifera*, Bezzi, Ann. Mus. Hungar. Vol. 5, p. 267, 268 (1907); Formosa.
ibidem, Vol. 10, p. 481, 488 (1912); Suppl. Ent. Berlin. Vol. 3,
p. 77 (1914).
13. *E. callositibia*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 354 [1904] (*Drapetis*); New Guinea.
ibidem, Vol. 10, p. 480 [1912] (*Drapetis*).
14. *E. calva*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 206 (1918). Panama.
15. *E. comata*, Melander, ibidem, Vol. 11, p. 207 (1918). Trinidad.
16. *E. dispar*, Adams, Kansas Univ. Sc. Bull. Vol. 3, p. 157 (1905); Bezzi, Rhodesia.
Ann. Mus. Hungar. Vol. 5, p. 567 (1907); ibidem, Vol. 10, p. 480
(1912).
17. *E. ephippiata*, Fallen, Empid. Suec. p. 11 [1815] (*Tachydromia*); Meigen, Europe.
Syst. Besch. Vol. 3, p. 65, pl. 23, f. 10 [1822] (*Hemerodromia*);

(1) ***Drapetis (Elaphropeza) bicaudata***, nov. sp. — Male. Length 2 mm. Luteous, the head black, occiput and the V-shaped face cinereous, third antennal joint blackish, bluntly conical, less than twice as long as wide and one-fourth as long as the dark arista; palpi oval, twice as long as wide, no long apical seta. Posterior dorsocentral moderate, apical scutellars approximate. Third abdominal tergite and its flattened setulæ brown, pygidium large and very long, tipped with two long strong black bristles. Legs simple, the hind metatarsi as long as the subsequent joints and two-thirds as long as their tibiae which have two strong extensor setæ. Wings hyaline, veins yellowish, a strong seta at base of costa, costal sections proportioned 1 : 0.5 : 1 : 0.4, first posterior cell gradually widening, sections of fourth vein 1 : 1.2 : 3.5, of fifth vein 1 : 0.5.

Female. Caudal bristles absent.

Type and allotype, Mt. Makling, Luzon, Philippine Islands, C. F. Baker. A third specimen has somewhat shorter hind metatarsi.

(2) ***Drapetis (Elaphropeza) biuncinata***, nov. sp. — Male. Length 1.5 mm. With *bihamata*, Bezzi, differing in its lengthened antennæ and darkened halteres. Head spherical, yellow, lightly pollinose, ocellar triangle brown, a pair each of ocellar and vertical bristles, strongly yellow; basal joint of antennæ yellow, crowned with black setulæ, outer joint lanceolate, black, pubescent, three times as long as deep, arista black, pubescent, two and one-fourth times length of last joint; mouthparts small, yellow, palpi orbicular, with brown apical seta. Thorax shining testaceous yellow, mesonotum as wide as long, bristles and hairs yellow, metanotum castaneous below or wholly so, a postalar but no dorsocentral bristle, two scutellars. First five segments of abdomen castaneous, the remainder testaceous, seventh segment fringed with long pale setæ, pygidium very large, quadrate from above. Legs pale yellow, no outstanding setæ, hairs yellow, hind tibiae with two strong curved black bristles just before the apex on the outer side, which are close together and one before the other. Halteres with brown knob. Wings hyaline, veins yellowish, costal sections proportioned 1 : 0.9 : 0.9 : 0.5, third and fourth veins parallel beyond end of second vein, anterior crossvein at middle of discal cell, sections of fifth vein 1 : 0.9.

Two males, Mt. Makling, Luzon, C. F. Baker. The paratype has a faintly smoky cloud over the central part of the wings. A female from the same locality lacks the tibial spurs and has pale halteres.

- Macquart, Dipt. N. France, Vol. 3, p. 87, pl. 2, f. 1 (1827); Hist. Nat. Dipt. Vol. 1, p. 359, pl. 8, f. 14a (1834); Zetterstedt, Dipt. Scand. Vol. 1, p. 326 (1842); Boitard, Man. Ent. Vol. 3, p. 325 (1843); Walker, List Dipt. Brit. Mus. Vol. 3, p. 505 (1849); Ins. Saunders, Dipt. Vol. 1, p. 134, pl. 5, f. 4 (1851); Scholz, Zeitschr. Ent. Breslau, Vol. 5, p. 60 [1851] (*ephippium*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 95 (1862); Strobl, Mitteil. Naturf. Ver. Steiermark, Graz, Vol. 29, p. 127 (1892); Melander, Ent. News. Philad. Vol. 17, p. 372 [1906] (*Drapetis*); Bezzi, Ann. Mus. Hungar. Vol. 5, p. 567 (1907); Lundbeck, Dipt. Dan. Vol. 3, p. 273, f. 123, 124 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 89 (1910); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 482 (1912); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 75 [1913] (*occ.*).
- ? *maculata*, Macquart, Mem. Soc. Sc. Lille, p. 153 [1823] (*Tachydromia*).
18. *E. exul*, Osten-Sacken, Berl. Ent. Zeitschr. Vol. 26, p. 113 (1882); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 347 (1904); ibidem, Vol. 5, p. 567 (1907); Vol. 10, p. 480 [1912] (*Drapetis*). Philippine Is.
19. *E. ferruginea*, Brunetti, Rec. Indian Mus. Vol. 4, p. 43 (1913); Fauna Brit. India, Dipt. Vol. 1, p. 386 (1920). India.
20. *E. flavicollis*, Becker, Bull. Mus. Hist. Nat. Paris, p. 116 [1909] (*Drapetis*); Ann. Soc. Ent. France, Vol. 79, p. 24 [1910] (*Drapetis*); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 482 (1912). E. Africa.
21. *E. flavida*, Williston, Trans. Ent. Soc. London, Vol. 3, p. 308, pl. 11, f. 86 [1896] (*Drapetis*); Coquillett, Proc. U. S. Nat. Mus. Vol. 22, p. 251 [1900] (*Tachydromia*); Wheeler & Melander, Biol. Centr. Amer. Dipt. Vol. 1, p. 376 [1901] (*Drapetis*); Melander, Mon. Empid. p. 213 [1902] (*Drapetis*); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 265 [1903] (*Tachydromia*); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 397, 398 [1909] (*Drapetis*); Melander, Psyche, Vol. 17, p. 52 [1910] (*Ctenodrapetis*); Ann. Ent. Soc. Amer. Vol. 11, p. 191 (1918). West Indies, C. & S. America.
- fulvida*, Bezzi, Wien. Ent. Zeit. Vol. 23, p. 144 [1904] (*Tachista*).
- xanthopoda*, Williston, Trans. Ent. Soc. London, Vol. 3, Appendix, 441, table [1896] (*Drapetis*).
22. *E. formosæ*, Bezzi, Ann. Mus. Hungar. Vol. 5, p. 566 (1907); ibidem, Vol. 10, p. 480, 487 (1912). Formosa.
23. *E. fulvithorax*, Wulp, Termes. Fuzet. Vol. 20, p. 138 (1897); Tijdschr. Ent. Vol. 42, p. 49 (1899); Bezzi, Ann. Mus. Hungar. Vol. 2, p. 347 (1904); ibidem, Vol. 5, p. 567 (1907); ibidem, Vol. 10, p. 480 (1912); Meijere, Tijdschr. v. Ent. Vol. 56, Suppl. p. 73 (1914); Brunetti, Fauna Brit. India, Dipt. Vol. 1, p. 385 (1920). Ceylon. Java.
24. *E. hirsutitibia*, Meijere, Tijdschr. v. Ent. Vol. 56, Suppl. p. 73 (1914). Java.
bihamata, Meijere (not Bezzi), ibidem, Vol. 54, p. 332 [1911] (*Drapetis*).
25. *E. inflexa*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 207 (1918). Panama.
26. *E. Kerteszi*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 481, 486 (1912); Meijere, Tijdschr. v. Ent. Vol. 56, Suppl. p. 74 (1914). Formosa.
27. *E. lata*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 208 (1918). Panama.
var. *nigrocalcarata*, Melander, ibidem, Vol. 11, p. 208 (1918). Panama.
var. *ungulifera*, Melander, ibidem, Vol. 11, p. 208 (1918). Panama.
28. *E. lanuginosa*, Bezzi, Suppl. Ent. Berlin, Vol. 3, p. 75 (1914). Formosa.
29. *E. lineola*, Meijere, Tijdschr. v. Ent. Vol. 54, p. 331 (1911); Vol. 56, Suppl. p. 75 (1914). Java.
30. *E. lutea*, Meijere, ibidem, Vol. 54, p. 332 (1911); ibidem, Vol. 56, Suppl. p. 76 (1914). Java.
31. *E. luteicollis*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 209 (1918). Panama.

32. *E. marginalis*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 481, 489 (1912). Formosa.
33. *E. melanura*, Bezzi, ibidem, Vol. 10, p. 481, 489 (1912); Suppl. Ent. Formosa.
Berlin, Vol. 3, p. 78 (1914).
34. *E. metatarsata*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 348 (1904); ibidem, Ceylon.
Vol. 5, p. 567 (1907); ibidem, Vol. 10, p. 482 (1912); Brunetti,
Fauna Brit. India Dipt. Vol. 1, p. 586 (1920).
35. *E. nigricans*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 209 (1918). Panama.
36. *E. obliquinervis*, Meijere, Tijdschr. v. Ent. Vol. 56, Suppl. p. 73, pl. 2, Java.
f. 9 (1914).
37. *E. palpata*, Meijere, ibidem, Vol. 54, p. 330 (1911); ibidem, Vol. 56, Java.
Suppl. p. 76 (1914).
38. *E. pictithorax*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 482, 486 (1912). Formosa.
39. *E. pleuralis*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 210 (1918). Vera Cruz, Panama.
40. *E. plumea*, Melander, ibidem, Vol. 11, p. 210 (1918). Mexico.
41. *E. rectineura*, Melander, ibidem, Vol. 11, p. 211 (1918). Panama.
42. *E. scutellaris*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 481, 482, 487 (1912). Formosa.
43. *E. seminigra*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 211 (1918). Costa Rica.
44. *E. simplicipes*, Melander, ibidem, Vol. 11, p. 212 (1918). West Indies.
45. *E. spuria*, Bezzi, Ann. Mus. Hungar. Vol. 2, p. 347 (1904); ibidem, New Guinea.
Vol. 5, p. 567 (1907); ibidem, Vol. 10, p. 480 (1912).
46. *E. tenera*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 212 (1918). Trinidad, Panama.
47. *E. uniseta*, Melander, ibidem, Vol. 11, p. 213 (1918). Philippine Islands.
48. *E. upsilon*, Melander, ibidem, Vol. 11, p. 214 (1918). West Indies.
49. *E. variata*, Melander, ibidem, Vol. 11, p. 221 (1918). India.
variegata (bis), Brunetti, Rec. Indian Mus. Vol. 9, p. 42 (not 39) [1913];
Fauna Brit. India Dipt. Vol. 1, p. 387 [1920] (*Drapetis*).
50. *E. variegata*, Brunetti, Rec. Indian Mus. Vol. 9, p. 39 [1913] (*Drapetis*); Burma.
Fauna Brit. India Dipt. Vol. 1, p. 381 [1920] (*Drapetis*).
51. *E. vittata*, Melander, Ann. Ent. Soc. Amer. Vol. 11, p. 214 (1918). Florida, West Indies.
52. *E. xanthocephala*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 481, 488 (1912). Formosa.

16. GENUS PLATYPALPUS, MACQUART

Platypalpus, Macquart, Dipt. N. France, Vol. 3, p. 92 (1827); Hist. Nat. Dipt. Vol. 1, p. 351 (1834); Westwood, Gen. Syn. p. 132 (1840); Boitard, Man. Ent. Vol. 3, p. 323 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 121 (1851); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 563 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 87 (1862); Lioy, Atti Inst. Sc. Veneto, Venezia, 1864, p. 721 (1864); Loew, Jahrb. Gel. Ges. Krakau, Vol. 41, p. 12 (1870); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 123 (1889); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 390, 438 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 214 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 255, 261 (1903); Melander, Williston's Man. N. Amer. Dipt. p. 222 (1908); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 592 (1910); Melander, Psyche, Vol. 17, p. 49 (1910).

Brevios, Brunetti, Rec. Indian Mus. Vol. 9, p. 22 (1913).

Cleptodromia, Corti, Wien. Ent. Zeit. Vol. 26, p. 101 (1907); Melander, Psyche, Vol. 17, p. 49 (1910).

Coryneta (of authors), Meigen, Nouv. Classif. Mouches, p. 27 (1800); Hendel, Verh. Zool.-bot. Ges. Wien, Vol. 58, p. 56 (1908); Kertész, Cat. Dipt. Vol. 6, p. 146 (1909); Bezzi, Ann. Mus. Hungar. Vol. 10, p. 453 (1912).

Howlettia, Brunetti, Rec. Indian Mus. Vol. 9, p. 23 (1913); Fauna Brit. India Dipt. Vol. 1, p. 360 (1920).

Phoroxypa, Rondani, Dipt. Ital. Vol. 1, p. 146 (1856); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 153 (1899); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 124 (1889); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 255, 261 (1903).

Tachydromia (of authors), Meigen, Illiger's Mag. Ind. Vol. 2, p. 269 (1803); Syst. Besch. Vol. 3, p. 67 (1822); Zetterstedt, Fauna Ins. Lappon. p. 548 (1838); Dipt. Scand. Vol. 1, p. 138 (1842); Rondani, Dipt. Ital. Vol. 1, p. 146 (1856); Loew, Zeitschr. Ent. Breslau, Vol. 17, p. 4 (1863); Williston, Man. N. Amer. Dipt. p. 75 (1896); Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 42 (1902); Bezzi, Kat. Palæarkt. Dipt. Vol. 2, p. 279 (1903); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 407 (1907); Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 300, 402 (1909); Wahlgren, Ent. Tidskr. Vol. 31, p. 45, 112 (1910); Lundbeck, Dipt. Dan. Vol. 3, p. 285 (1910); Brunetti, Fauna Brit. Indian Dipt. Vol. 1, p. 374 (1920).

Characters. — Usually robust, and with sturdy legs, the middle femora more or less incrassated and biserially setulose or spinose beneath, the middle tibiae shorter than their femora, raptorial, uniserially setulose beneath and terminating within in a more or less developed spur: in color usually black though some species are testaceous. Head globular, sometimes a little higher than broad, the front broader than the face, but of variable breadth, sometimes with parallel sides sometimes diverging above, cheeks linear; eyes reniform, facets uniform; palpi flat and broadly oval, appressed to the proboscis, usually with one or two apical setae, the front side with short incumbent hairs, the inner side glabrous; proboscis vertical, shorter than the head. Antennae close together, located near the middle of the head, two- or three-jointed, the second joint globose, with a whorl of minute hairs, the third joint compressed, varying from short ovate to subulate, slightly pubescent, and always with a terminal arista which is closely but briefly pubescent. Ocelli three in number, placed on a low tubercle, one pair of proclinate ocellar bristles, in back of which are sometimes a pair of minor setulae; one or two pairs of vertical bristles differentiated, the upper occipital setulae usually dark, the lower more abundant and white. Thorax quadrate, the dorsum slightly convex, humeri rather distinct, thorax usually dusted, typically with a shining glabrous space on the sterno-pleurae, sometimes the disk of the mesonotum devoid of pollen and highly polished, rarely densely pubescent, usually with biserial acrostichal setulae and uniserial dorsocentral and sparse lateral setulae, the hindmost dorsocentral setiform, chaetotaxy including one or two humeral bristles, one or several notopleural, one supraalar, one postalar, two or four scutellar bristles, the lateral scutellars small. Abdomen with eight segments, shining, rarely with pollinose fasciae or lateral markings, the subdorsal and lateral pittings sometimes evident though usually not noticeable on the shining integument, hairs sparse but moderately long; ovipositor short, shining or pollinose; pygidium more or less globular, asymmetrical, closed, comprising a spherical lower piece, covered by a dorsal usually fringed valve. Legs without true bristles, but the middle femora sometimes serially setose along the postero-flexor face and less evidently so along the anterior surface, the front femora with more or less developed biserial flexor cilia, tibiae without apical setae, last tarsal joint a little flattened, tarsi unusually long in *Cleptodromia*. Calypteres fringed with a few cilia; halteres never black. Wings hyaline or nearly so, not pictured but sometimes clouded, tip of first vein and costa between the first and third veins sometimes thickened, first vein ends beyond the middle of the wing, third vein straight or recurved toward the fourth, crossveins approximate, usually when the crossveins meet on the fourth vein the posterior crossvein is nearly transverse but when the posterior crossvein is located beyond the anterior it is distinctly oblique, anal crossvein angularly projecting from the fifth vein, the anal vein always faint but visible for more or less of its course, axillary lobe somewhat developed but obtusely rounded.

Type species : *P. cursitans*, Fabricius (Pl. 4, Fig. 30), by designation of Westwood, Introduction, Vol. 2, Synopsis, p. 132 (1840).

The species of this dominant genus are able to run and to fly well. The more pruinose species are campestrial and are found through the warmer summer months, the testaceous and the shining black species are more fond of shady woods. The species are predatory, using their curiously formed middle legs for holding their prey. The larva of *P. major*, has been found in the ground under moss (Beling).

The genus *Platypalpus*, includes so many species that it has become unwieldy from a practical viewpoint. Furthermore, in this assemblage there are species so diverse that if contrasting forms were selected they would present differences striking enough to warrant a division of the genus. The pale yellow species scarcely resemble the black ones; those with stout legs and strong tibial spur are unlike the delicate forms with slender legs and no tibial spur. Rondani attempted a segregation on the basis of antennal structure, forming his genus *Phoroxypa* for those few species which have a short dark arista, centering about *longicornis*. Bezzi, in 1899, formed two groups, one where the antennæ are longer than the head, the other where they are shorter. Frey, in 1907, based his primary divisions on the length of the tibial spur. All of these characters, however, present too many gradations to have even subgeneric value. Even Corti's recent subgenus, *Cleptodromia*, founded on an abnormal tarsal structure, is scarcely more secure, although so far its solitary species presents a unique characterization.

In 1913, Brunetti described two related Indian genera of Empididæ, *Brevios* and *Howlettia*, locating them near *Bicellaria*. Later he suppressed *Brevios* as a synonym of *Platypalpus*, but retained *Howlettia* as a genus of anomalous position, placing it provisionally in the Empidinae. In its description *Howlettia* agrees with *Platypalpus* so completely that in view of the complexity of this dominant genus it is here included as a synonym. The only distinctive character specified by Brunetti is the complete anal cell and anal vein, and it may be that in the strength of the anal vein *Howlettia* presents a more archaic condition than found in the other forms of *Platypalpus*.

A discussion of the usage of the terms *Platypalpus*, *Tachydromia* and *Coryneta* has previously been given by the writer in *Psyche*, Vol. 17, p. 41-48 (1910) and need not be repeated here. Briefly the case is this: Meigen described *Tachydromia* in 1803, citing *cursitans* and *cimicoides*. In 1827 Macquart segregated the genus *Platypalpus* for *cursitans* and its allies. Thus *cimicoides* becomes the only available type of *Tachydromia*. *Coryneta* is one of the aggravating genera of Meigen's 1800 paper. It was erected, like the others in this paper, without designation of type and, in our opinion, its genotype and its validity date from Hendel's interpretation in 1908.

SYNOPSIS OF THE NEARCTIC SPECIES OF PLATYPALPUS

1. Coxæ and femora largely or entirely black; body and antennæ
black; veins dark 2.
- Coxæ, femora and tibiæ largely or entirely yellow 16.
2. Front tibiæ thickened, wider than the hind tibiæ; front femora
thickened; spur of the middle tibiæ strong; third antennal
joint oval; thorax pollinose, with yellow bristles. 3.
- Front tibiæ not incrassate 5.
3. Posterior crossvein short, located beyond the anterior a greater
distance than its length, the under side of the second basal
cell greatly bowed upward distally, the first posterior cell
wide near the middle; legs variegated 4.

- Posterior crossvein located near the anterior, second basal and first posterior cells normal; legs black except the brownish trochanters, knees, hind tibiae and bases of the tarsal joints P. LUPATUS, Melander.
4. Hind femora and all the tibiae yellow, tarsi sharply annulate. P. COQUILLET, Melander, ♂.
- Hind femora middle tibiae and middle tarsi black, front tarsi dark at the base P. PACHYCNEMUS, Loew.
5. Some of the femora in part at least yellowish; crossveins meeting 6.
- All the femora black, except sometimes at the knees 9.
6. Thorax shining, its bristles yellow; tibiae yellow, tarsi piceous; third antennal joint oval 7.
- Thorax pollinose and pubescent, its bristles black; front legs entirely yellow, the other tarsi more or less annulate, spur of the middle tibiae very strong; third antennal joint lanceolate, equal to arista P. DISSIMILIPES, nov. sp. (1).
7. Front opaque pollinose; antennae reddish; front legs entirely yellow, the middle femora black and with strong black setae, the hind femora black on the apical half, spur of middle tibiae long P. VERSIPES, nov. sp. (2).
- Front shining; antennae black; front legs partly dark, the middle femora without black setae, tibial spur short. 8.
8. Front femora above and the posterior femora apically black, the base of all the femora yellow, anterior femora yellow-ciliate beneath, front coxae yellow P. DIVERSIPES, Coquillett.

(1) *Platypalpus dissimilipes*, nov. sp. — Length 2 mm. Black, cinereous, subpollinose, legs yellow, the posterior femora black, bristles black, crossveins contiguous. Front and face somewhat whitish when viewed from below, two pairs each of long ocellar and vertical bristles; palpi small, whitish, with a long subapical dark hair; third joint of antennae lanceolate, twice as long as wide, the rather strong arista equal to the antennal length. Dorsum of thorax subshining although evidently pollinose, its bristles strong, one humeral, one notopleural, one supraalar, one postalar, one dorsocentral, four scutellar bristles, four rows of acrostichals and numerous lateral setulae; glabrous spot of sternopleurae large; abdomen shining, each segment with a single subdorsal pit, pygidium small, its hairs sparse and black. Middle femora stout, coarsely black-setulose and spinose beneath, front femora sometimes brownish along the middle, underneath subciliate with pale hairs, spur of middle tibiae long and strong and with a black tip, last tarsal joint blackened. Costa not swollen at the insertion of the first vein, its second, third and fourth sections proportioned 3.5 : 2.4 : 1, third and fourth veins parallel, crossveins meeting, the posterior crossvein nearly transverse, anal crossvein forming an angle of eighty degrees, anal vein represented by a pronounced fold.

Fifteen specimens, type from Moscow Mountain, Idaho, June 12, 1910 (Melander). Paratypes from Moscow, Troy and Waha, Idaho; Mount Constitution, Winlock, Pluvius and Ilwaco, Washington; Eagle Creek, near Portland, Oregon (Melander); Kaslo, British Columbia (R. P. Currie); and Colorado (C. F. Baker).

(2) *Platypalpus versipes*, nov. sp. — Male. Length 2.2 mm. Mesonotum shining, head pollinose, front legs yellow, middle femora and apical half of the hind femora black. Sides of the opaque front slightly diverging above, face short, as broad as the bottom of the front, anterior part of the epistome pollinose; palpi yellow, proboscis blackish; vertical and ocellar bristles black; antennae brown, the third joint short-ovate, the arista less than twice as long as the antenna. Sides of the thorax lightly pruinose, sternopleura and a central spot on the hypopleura glabrous, bristles blackish, notal hairs moderately long and blackish. Abdominal hairs short and sparse, pygidium small and nearly bare. Front coxae yellow, posterior coxae blackish, anterior femora robust, the front pair not ciliate, middle femora setulose with black bristles in back, posterior tibiae and tarsi yellow, the last joint of the tarsi dusky, the middle patella black, middle tibiae two-thirds as long as their femora, the spur longer than the diameter of the tibia and tipped with black. Veins yellowish, third and fourth veins subparallel, the first posterior cell widest beyond its middle, second, third and fourth sections of the costa proportioned 1 : 0.6 : 0.2, crossveins meeting, sections of the fourth vein, 1 : 1.8; of the fifth vein 0.5 : 0.6 : 1, base of the anal vein wanting, marginal cilia shorter than the anterior crossvein.

One specimen, Falls Church, Virginia, May, received from Nathan Bauks.

- Anterior femora brown, hind femora black, none of the femora yellow at the base, nor ciliate, the front coxæ piceous . . . P. DIREPTOR, nov. sp. (1).
9. Thorax pollinose, not or scarcely shining 10.
Mesonotum shining, except more or less at the humeri and along the lateral edge, its bristles yellow 14.
10. Bristles of the thorax black; third antennal joint lanceolate or elongate oval 11.
Bristles of the thorax yellow; third antennal joint oval 13.
11. Spur of the middle tibiæ long; posterior crossvein beyond the anterior and oblique; anterior femora ciliate with yellow hairs beneath P. PLUTO, Melander.
Spur of the middle tibiæ moderate; crossveins meeting, the posterior transverse; femora not ciliate, but the middle femora black-spinose beneath 12.
12. Third antennal joint much shorter than arista and not hairy; halteres and calypteres blackish; front femora robust . . . P. LACERTOSUS, nov. sp. (2).
Third antennal joint very long and pubescent, longer than arista; halteres and calypteres pale; front femora not very stout P. SPINOSUS, nov. sp. (3).

(1) *Platypalpus direptor*, nov. sp. — Male. Length 1.9 mm. Black, dorsum shining, bristles yellowish, pleuræ cinereous, antennæ short, legs brown, the hind femora black, no tibial spur nor femoral cilia, crossveins nearly meeting and transverse. Occiput and face cinereous, front moderately broad and very lightly dusted, epistome shining; palpi short and blackish; antennæ two-jointed, the outer joint short-ovate, half as long as the arista; two pairs of black vertical and one of ocellar bristles. Humeri, notopleural suture, scutellum, metathorax and pleuræ densely cinereous pruinose, the sternopleuræ largely glabrous; two humeral, one notopleural, one supraalar, one postalar, two pairs of scutellar and two of small dorsocentrals, setulæ very sparse and fine, seven biseriate acrostichals; abdomen shining, pygidium rather large and spherical. Front coxæ and anterior femora except the knees brown, posterior coxæ and hind femora black, tibiæ and bases of the tarsi yellowish brown; anterior femora stout, neither ciliate nor setose, front tibiæ as thick as the others. Veins brown, costa not thickened, its second, third and fourth sections proportioned 2 : 1.6 : 1, third vein straight, ending much before the apex of the wing, fourth vein slightly undulating, posterior crossvein at two-fifths the length of the wing, slightly oblique and arising a little before the anterior, sections of the fifth vein proportioned 0.5 : 0.5 : 1, anal crossvein forming an angle of fifty degrees, anal vein indicated only as a faint fold, marginal cilia short.

One specimen, Nelson, British Columbia, July.

(2) *Platypalpus lacertosus*, nov. sp. — Female. Length 2 mm. Body, antennæ, palpi, halteres, coxæ and femora except knees, black; mesonotum densely brown-pollinose, bristles black, legs short and stout, tibial spur vestigial, middle femora setose beneath, crossveins contiguous. Occipital hairs setiform, black, the two vertical and the ocellar bristles strong and black, front and face each short and wide, pollinose, epistome shining, proboscis stout, black, palpi with subapical black setæ; antennæ very short the outer joint ovate, slightly longer than wide and three-fifths as long as the arista. Mesonotum with abundant black setulæ, the bristles strong, including the humeral, scutellars widely separated, a strong lateral scutellar present; pollen of pleuræ brownish gray, sternopleura almost wholly polished. Abdomen shining, the hairs short and inconspicuous, last two segments dull, styles long and slender. Knees, tibiæ and tarsi brown, front femora robust, front tibiæ strong though not incrassate, middle femora with about twenty-five minute setulæ in each row and behind with a series of six long black bristles, middle tibiæ scarcely two-thirds the length of the femora, tarsi not annulate and scarcely darker apically. Calypteres, fringe and halteres blackish. Wings hyaline, two and one-half times as long as wide, veins thin but firm and black, costal sections proportioned 5 : 3.5 : 2.5 : 1, first posterior cell ending at the wing-tip, a little widest at the middle, third vein straight, fourth vein lightly sinuous, sections of the fifth vein proportioned 1 : 1 : 2, anal crossvein forming an angle of fifty-five degrees, anal vein very weak, anal angle rather pronounced.

Two specimens, North end of Lake Cœur d'Alene, Idaho, August 24, 1916 (Melander). The species is related to *hians* and *luctator* but is readily distinct in its blackened legs.

(3) *Platypalpus spinosus*, nov. sp. — Male. Length 2.2 mm. Black, the legs piceous. The ocellar and the two pairs of vertical bristles strong and black; third antennal joint pubescent and slender, three and one-half times as long as broad, the arista equal in length to the third joint; face and front cinereous; palpi small, white,

13. Slender; legs including the coxæ entirely black; pleuræ and front coxæ pruinose; discal dorsocentrals present . . . *P. TACHISTIFORMIS*, nov. sp. (1).
 More robust; legs piceous, the front coxæ, the middle trochanters and the tibiæ yellowish brown; pleuræ and front coxæ silky-pollinose; bristles minute. *P. SERICATUS*, nov. sp. (2).
14. Anterior femora ciliate beneath; posterior crossvein beyond the anterior; middle tibiæ with a sharp spur; four scutellar bristles 15.
 Femora not ciliate; crossveins meeting; no tibial spur; third antennal joint oval; two scutellar bristles *P. CONTIGUUS*, nov. sp. (3).

with a few fine black hairs. Thoracic dorsum with golden pollen, bristles black, one humeral, one notopleural, one supraalar, one small prescutellar and two scutellar bristles; pleuræ more closely but finely pollinose, the sternopleuræ largely shining; abdomen shining, white-hairy, pygidium large. Spur of the middle tibiæ moderately large, black, the postero-flexor edge of the middle femora with thirteen black spine-like bristles, the anterior side of the middle tibiæ also with smaller more scattered black bristles, under side of front femora with small pale separated cilia. Costa greatly thickened at the confluence with the first vein, the second, third and fourth sections proportioned 4 : 3 : 1, third and fourth veins subparallel, crossveins meeting, the posterior transverse, anal vein weak but uniformly perceptible, anal crossvein forming an angle of sixty degrees, abruptly attenuated beyond its basal third.

One specimen, Stanford, California, January 27, 1906, collected by Dr. J. M. Aldrich.

(1) *Platypalpus tachistiformis*, nov. sp. — Female. Length 2 mm. A slender black species that resembles certain species of *Tachyempis*, but has a distinct anal crossvein and a spur on the middle tibiæ. Head and thorax cinereous pollinose becoming pruinose on the pectus and pleuræ, legs black, the front knees narrowly brown. Palpi elliptical, one-half as long as the proboscis, black but thickly overlaid with white pruinosity and with a few white hairs; first antennal joint entirely wanting, the last joint globular, scarcely longer than wide, the rather thick arista one third longer than the antennæ; the ocellar and two pairs of vertical bristles rather strong and blackish. Bristles of the thorax prominent and yellow, four dorsocentrals, six rows of acrostichals, six scutellar bristles; sternopleuræ with a small rounded glabrous spot; sides of the first abdominal segment pollinose, the last three segments opaque brown pollinose. Front femora rather thick, middle femora loosely ciliate with short bristle-like yellow hairs on the postero-flexor edge, front coxæ with abundant golden bristles. Costa not swollen, its second, third and fourth sections proportioned 2.5 : 2.5 : 1, third and fourth veins parallel, anterior crossvein slightly beyond the oblique posterior crossvein, sections of the fifth vein subequal, anal crossvein complete, forming an angle of seventy degrees, anal vein indicated by a fold.

Two specimens, Harlowton, Montana, June 14, 1913 (Melander).

(2) *Platypalpus sericatus*, nov. sp. — Female. Length 2 mm. Black, legs piceous, the front coxæ, apex of posterior coxæ, base of femora, apex of front femora, and the tibiæ yellowish-brown. Third antennal joint oval, one-half longer than wide, the arista one and two-thirds times as long as the antennæ; face, front and palpi white-pruinose, the latter one-third as long as the proboscis; ocellar bristles brown. Dorsum of the thorax with yellow pollen, the minute sparse hairs and the bristles yellow, one humeral, one notopleural, one prescutellar, four scutellar, the lateral pair small; pleuræ and front coxæ with silky whitish-yellow pollen, the sternopleuræ largely shining; abdomen polished. Anterior femora ciliate with yellow hairs, spur of the middle tibiæ long and strong. First vein swollen on entering the costa, the second, third and fourth sections of the costa proportioned 3.2 : 2.5 : 1, posterior crossvein oblique, located beyond the anterior a distance equal to the length of the anterior crossvein, fourth and fifth veins parallel, fifth vein interrupted before reaching the margin; base of anal vein completely wanting, the remainder indicated as a fold.

One specimen, Nelson, British Columbia, July, 1910.

(3) *Platypalpus contiguus*, nov. sp. — Length 2 mm. Black, largely shining, legs black, crossveins contiguous. Third antennal joint short-oval but broad, the arista not much longer than the antennæ; face and front cinereous pollinose; palpi small, one-fourth as long as the proboscis, blackish; cephalic hairs blackish. Humeri, notopleural sutures, scutellum and metanotum cinereous pollinose, otherwise the notum is polished, the bristles and hairs yellowish, three humeral hairs, three notopleural, one supraalar, one scutellar, two pairs of dorsocentral bristles, acrostichals biseriate and small; pleuræ white-pruinose, the sternopleuræ polished; abdomen shining, the pygidium rather erect. Posterior coxæ and femora and the tarsi apically, black, femora not ciliate, no tibial spur. Costa only slightly swollen at the confluence with the first vein, the second, third and fourth sections proportioned 2.5 : 1.6 : 1, third and fourth veins parallel, anal crossvein evanescent, forming an angle of fifty degrees, anal vein indicated only by a fold in its outer part.

Bear Lake, British Columbia, 7000 feet altitude, July 29, 1903, collected by R. P. Currie for the U. S. National Museum.

15. Legs entirely black; third antennal joint oval *P. MONTICOLA*, Melander.
 Tibiæ and front knees brown, tarsi annulate; third antennal
 joint lanceolate *P. INFERRIALIS*, nov. sp. (1).
16. Thorax yellow in large part; veins yellowish. 17.
 Thorax wholly black, although more or less overlaid with
 pale pollen 35.
17. Head entirely yellow; front femora with seriate flexor bristles 18.
 Head globular, the occiput at least black 20.
18. Spur of middle tibiæ strong; posterior crossvein oblique and
 distant from anterior; sides of front nearly or quite parallel 19.
 Spur of middle tibiæ undeveloped; crossveins meeting, the
 posterior transverse; head globular, sides of front diverging
 above. *P. DECOLOR*, nov. sp. (2).
19. Head globular; antennæ tipped with black; thorax shining;
 third vein recurved *P. MELLEUS*, nov. sp. (3).

(1) *Platypalpus inferrialis*, nov. sp. — Length 2.2 mm. Occiput cinereous, one pair of brown vertical bristles, front and face cinereous when viewed from above, white when seen from below; palpi one-third as long as the proboscis, whitish and with a few white hairs; third antennal joint lanceolate, twice as long as broad, the arista slightly longer than the antennæ. Dorsum of the thorax shining black except that the lateral and posterior margins are cinereous pollinose, its hairs and bristles fine and yellow, one dorsocentral, one supraalar, one notopleural and two pairs of scutellar bristles; pleuræ whitish pruinose, the notopleural suture more olivaceous, sternopleuræ with large triangular shining space; abdomen subshining, its hairs not long, the pygidium rather small, the terminal valve with a fringe of silky hairs above and the left valve similarly fringed beneath. Front and middle femora stout, with long loose white seriate hairs beneath, spur of the middle tibiæ large; femora black, knees and tibiæ brown, the hind pair darkest, tarsi annulate, but usually the black predominating. Costa thickened at the end of the first vein, its second, third and fourth sections proportioned 3.5 : 2.5 : 1, fourth vein slightly sinuous but in the main subparallel with the third, posterior crossvein oblique, separated from the anterior by one-half the length of the anterior crossvein, sections of the fifth vein proportioned nearly 3 : 2, anal crossvein located at one-third the length of the second basal cell, nearly perpendicular, anal vein indicated merely by a fold.

Numerous specimens, type from Almota, Washington, April 17. Paratypes from Pullman and Oroville, Washington (Melander) and Juliaetta, Idaho (J. M. Aldrich).

(2) *Platypalpus decolor*, nov. sp. — Female. Length 2.5 mm. Entirely pale yellow, the arista, ocellar spot, apex of abdomen and last tarsal joint alone brownish. Head globular, sides of the pollinose front diverging, epistome shining, palpi small; last antennal joint slender, lanceolate, two and a half times as long as broad and slightly longer than the short-pubescent arista. Mesonotum polished except along the sides where it is lightly dusted, nearly bare, the few hairs seriate, humeral bristle strong, middle scutellars long; pleuræ dusted except most of the sternopleuræ; abdomen shining. Legs slender, front femora biseately fringed beneath with about ten bristles, middle femora with about eighteen slender spinules in each flexor row, those behind longer, middle tibiæ obliquely truncate without spur. Veins pale yellow, crossveins at two-fifths the wing-length, the posterior transverse and slightly proximal to the anterior, first posterior cell ending at the wing-tip, its veins parallel, base of the anal vein weakly indicated, anal crossvein slightly recurved, sections of the costa proportioned 6 : 4 : 2 : 1.

Two specimens, Foot of Lake McDonald, Glacier National Park, Montana, August 14, 1916 (Melander).

(3) *Platypalpus melleus*, nov. sp. — Female. Length 2 mm. Yellow, the ocellar spot, outer half of the third antennal joint with the arista, the eyes, flexor setulæ of middle legs, apex of tibial spur and last tarsal joint alone blackish. Back of occiput shining, front and face moderately broad, white, the face three-fourths as long as the front, epistome shining; third joint of the antennæ pyriform, one-half longer than broad and about one-third as long as the arista. Thorax shining above, setulæ very sparse and small, pleuræ white-pruinose except the moderate sternopleural spot; abdomen shining except the last two segments. Legs rather slender, the middle femora moderately inflated, front femora scarcely ciliate, middle femora with a posterior row of eight silky yellow setæ, middle tibiæ two-thirds as long as their femora. In *tersus* the front femora are somewhat swollen and ciliate, and the middle tibiæ are three-fourths as long as their femora. Wings narrow, the second, third and fourth sections of the costa proportioned 4.5 : 3.5 : 1, third vein recurved but ending just before the tip of the wing, posterior crossvein slightly oblique, located its own length beyond the anterior and at three-sevenths the length of the wing, anal crossvein perpendicular, sections of the fifth vein proportioned 0.4 : 0.6 : 1, base of the anal vein wanting, marginal cilia as long as the anterior crossvein.

One specimen, Gowanda, New-York, received from M. C. Van Duzee.

- Head narrow, the occiput conical; antennæ whitish; humeri pollinose; third and fourth veins parallel *P. TERSUS*, Coquillett.
20. Thorax with a median broad blackish vitta 21.
 Thorax without a median vitta 26.
21. Proboscis black; wings elongate, the posterior crossvein beyond the anterior and oblique; tibial spur large *P. CALIGARIS*, new name.
 Proboscis mostly yellow; posterior crossvein transverse 22.
22. At least sides of thorax lightly pollinose; front densely pollinose; anal crossvein nearly perpendicular 23.
 Thorax shining; front shining; middle femora with yellow setæ beneath in addition to the biseriate setulæ; anal crossvein strongly recurved 24.
23. Crossveins widely separated; middle femora setose as well as setulose *P. RUBEFACTUS*, nov. sp. (1).
 Crossveins meeting; middle femora not setose; northern species 25.
24. Third antennal joint short ovate, yellow, one-third the arista; flexor setæ of middle femora strong; crossveins at one-third length of wing; mesonotal hairs rather long and sparse; face silvery *P. MESOGRAMMUS*, Loew.
 Third antennal joint lanceolate, black, two-thirds the arista; flexor setæ weak; crossveins at two-fifths length of wing; hairs short and dense; face shining *P. XANTHOCHITON*, nov. sp. (2).

(1) *Platypalpus rubefactus*, nov. sp. — Male. Length 1.75 mm. Body largely yellowish. Occiput black, hoary, its hairs long, sparse and white, sides of the concolorous front somewhat diverging above, epistome bare, proboscis yellowish, palpi rather large, white-pubescent; last antennal joint slightly infuscated apically, short-conical, one-half longer than broad and one-third as long as the thickened dark arista. Mesonotum dusted, a dark vitta occupying the central third, dorsal setulæ very sparse and seriatly arranged in four rows, humeral bristle weak, two scutellars; pleuræ pruinose, about half of sternopleura bare. Abdominal tergites brownish yellow, hypopygium brown, terminal, larger than the diameter of the abdomen, its valves closely fringed with long curled yellow hairs. Legs entirely yellow, the apex of the tarsi infuscated, front femora with a half dozen outstanding hairs beneath, middle femora rather slender, with about twenty minute setulæ in each flexor row, in front and in back of which are outstanding yellow hairs, those in back fewer and much longer, spur of middle tibiæ minute. Wings lutescent, three and a half times as long as wide, veins yellow, the third to fifth sections of the costa proportioned 6 : 3 : 1, first posterior cell narrow, occupying one-fourth the width of the wing, its veins parallel, crossveins before the middle of the wing, the posterior transverse, spaced its own length from the anterior, anal crossvein at the middle of the basal cell, perpendicular, anal vein evanescent basally.

Type : Chicago, Illinois, July, 1914 (Melander). Paratypes, Plummer's Island, Maryland (McAtee). The female has the telescopic tip of the abdomen opaque yellow.

(2) *Platypalpus xanthochiton*, nov. sp. — Female. Length 2.5 mm. Yellow, head black, mesonotum with a central brown vitta, tergites medially brown, legs entirely pale yellow, veins thin and blackish, crossveins meeting. Head globular, occiput dull, its upper hairs dense and pale, front moderately broad and shining, face and epistome shining; proboscis yellow, palpi large and pale yellow; base of the antennæ shining yellow, distal joint triangular, black, nearly twice as long as broad and about half the length of the finely pubescent arista. Disc of the mesonotum devoid of pollen but uniformly clothed with rather dense short fine whitish hairs, no humeral, two notopleural and the middle pair of scutellar bristles yellow. The dark vitta is narrow in front becoming broader and diffusing posteriorly; base of the scutellum brown. Abdominal hairs inconspicuous; terminal segments not ochraceous. Legs slender, front femora not ciliate, middle femora with twenty-five setulæ in the anterior row and twenty in the posterior and with about ten weak yellow posterior setæ, middle tibiæ two-thirds as long as their femora, the spur small and yellow. Halteres, calypteres and root of wing pale yellow. Sections of the costa proportioned 10 : 7 : 5 : 2; of the fourth vein, 1 : 1.4, of the fifth vein, 2 : 3 : 4, third vein ending at extreme wing-tip, anal crossvein forming an angle of fifty degrees, anal vein faint, anal angle weak.

Two specimens, Almota, Washington, June 2, 1918 (Melander).

25. Mesonotum uniformly pollinose; third antennal joint tipped with black; anal crossvein and anal vein distinct; face as long as the front; middle tibiæ much shorter than the femora *P. FLAVIROSTRIS*, Loew.
var. *VITTIGER*, nov. var. (1).
- Sides of the notum pollinose; antennæ yellow; anal crossvein and anal vein very faint; face much shorter than the front; middle tibiæ nearly as long as their femora *P. MELANOGASTER*, nov. sp. (2).
26. Thorax densely yellow-pollinose; antennæ wholly or quite yellow; middle femora setose 27.
Thorax shining or subshining; third antennal joint usually darkened 29.
27. Posterior crossvein beyond the anterior; tarsi yellow 28.
Crossveins meeting; tarsi narrowly annulate; proboscis yellow *P. IMPEXUS*, Melander.
28. Proboscis yellow; antennæ entirely pale yellow; abdomen ♀ sometimes with a narrow median vitta *P. VERSUTUS*, Melander.
Proboscis black; third antennal joint tipped with black; middle segments of the abdomen black. *P. OCHRICOLLIS*, nov. sp. (3).

(1) *Platypalpus flavirostris*, var. *vittiger*, nov. var. — Male. Length 3.6 mm. Head black, cinereous pollinose, mouth-parts and base of the antennæ yellow, the third antennal joint about one-third the arista, elongate-oval, mesothorax lightly pollinose over an ochraceous ground, a median blackish vitta about one-fourth the width of the notum; base of the pollinose scutellum narrowly blackish; most of the sternopleuræ smooth. Abdomen blackish, shining. Legs yellow, the last tarsal joint blackish, middle femora with five yellow bristles and twenty-six black setulæ on the antero-flexor edge and nineteen bristles on the postero-flexor edge, spur of middle tibiæ small. Wings yellowish hyaline, the veins pale, crossveins touching, the posterior nearly transverse, third vein ending at the wing-tip, reflexed and parallel with the fourth, under side of the second basal cell slightly shorter than the ultimate section of the fifth vein, anal vein rather weak and forming an angle of eighty degrees.

Type, Douglas, Alaska, August 7, 1901, collected by the late E. L. Jenne. A series of similar specimens was taken by the writer in Glacier National Park, Montana, August 14, 1916. A dozen additional specimens from the same locality lack the mesonotal vitta and approach the typical form of *flavirostris*.

Differs from *mesogrammus* Loew in having the thorax pollinose, not shining, the third antennal joint black and the middle femora more slender and with only the usual two rows of black setulæ beneath. In *mesogrammus* there is an additional row of about ten long pale bristles along the postero-flexor edge.

(2) *Platypalpus melanogaster*, nov. sp. — Length 1.8 mm. Head and abdomen black, thorax yellow with a median castaneous vitta, legs pale yellow. Occiput lightly cinereous, its hairs white; antennæ inserted low down on the head, the front about twice as long as the face; two pairs of ocellar bristles but apparently no vertical ones; front moderately broad, its sides slightly diverging above, minutely but densely whitish pubescent rather than pollinose, face one-half as broad as the front, whitish, epistome black; proboscis reddish; antennæ short, yellow, the third joint short-pyriform, apparently ovate but really pointed, the arista brown, rather coarse, two and one-half times the actual length of the third joint. Thorax short, quadrate, broader than the head, humeri large, squarish, sides of the notum thinly white pollinose, disk polished and nearly bare; pleuræ lightly white-pollinose, the sternopleuræ largely shining; abdomen shining, blackish, its hairs sparse, the pygidium moderate in size, the dorsal valve short and rugose apically; abdomen of female tapering, the last two segments opaque ochraceous, styles slender and yellow. Legs long and slender, simple, middle tibiæ five-sixths as long as their femora, the flexor setulæ of the middle legs rather long, thin and yellow, no extra setæ, no tibial spur. Veins pale but towards the apex becoming brownish, costa not thickened, its second, third and fourth sections proportioned 3 : 1.8 : 1, third and fourth veins rather widely separated, straight and parallel, posterior crossvein transverse, located a little before the anterior and at three-sevenths the wing length, fifth vein very long, its sections proportioned 0.5 : 0.5 : 1, anal crossvein perpendicular, very faint, anal vein very faint and close to the margin.

Three specimens; Ungava Bay, near northern Labrador, collected by L. M. Turner. Type in the U. S. National Museum.

(3) *Platypalpus ochricollis*, nov. sp. — Female. Length 2 mm. Head black, densely cinereous pollinose, the bristles pale yellow, proboscis black, palpi pale yellow, antennæ yellow, the lanceolate third joint tipped with black. Thorax ochraceous, overlaid with dense whitish pollen, sternopleuræ with a small glabrous spot;

29. Proboscis entirely black; spur of the middle tibiæ large; anal crossvein perpendicular. 30.
 Proboscis yellow; tibial spur rather small; first posterior cell not much narrowed 31.
30. Mesonotum shining, pleuræ mostly shining; first posterior cell somewhat narrowed in the margin; tarsi weakly annulate. R. LÆTUS, Loew.
 Mesonotum dusted, subshining, pleuræ pruinose except the sternopleural spot; fourth vein not noticeably curved forward; tarsi not at all annulate. P. LÆTABILIS, nov. sp. (1).
31. Front narrow, its sides nearly parallel; antennæ entirely yellow; base of the anal vein wanting 32.
 Front rather broad, its sides diverging above; third antennal joint blackened; anal crossvein oblique, anal cell closed, crossveins nearly meeting (*P. flavirostris*, Loew) 33.
32. Anal crossvein perpendicular, crossveins separated. P. MIMUS, nov. sp. (2).
 Anal crossvein oblique, crossveins meeting; penis hook-like, right valve with thorn-tipped process P. UNCINATUS, nov. sp. (3).

abdomen glistening, yellow at base and apex, the fourth and fifth segments blackish, the third segment somewhat brown. Legs yellow, the last tarsal joint dusky, middle femora with sixteen minute black setulæ on the antero-flexor edge, twenty on the postero-flexor edge, in back of which are about nine long yellow bristles, spur of middle tibiæ long, acute and tipped with black. Wings yellowish hyaline, veins pale, the third and fourth veins parallel, the first posterior cell ending full at the tip of the wing, posterior crossvein beyond the anterior by the length of the latter, sections of fifth vein equal, anal vein weak.

One specimen, Pullman, Washington, June 16, 1912 (Melander).

(1) *Platypalpus lætabilis*, nov. sp. — Female. Length 3.2 mm. Very close to *lætus*, differing in having the mesonotum dusted so as to be subshining, the pleuræ completely white-pruinose except for the sternopleural spot, and the third and fourth veins subparallel towards the end. Head cinereous, body testaceous, front and face narrow, densely white-pruinose; proboscis black, palpi white; third antennal joint blackish, ovate, one-half longer than wide and one-half as long as the arista. Thoracic setulæ very sparse; abdomen shining except the terminal segments. Front femora with sixteen flexor cilia; middle femora yellow-setose in back, middle tibiæ two-thirds as long as their femora, the terminal spur long and sharp and tipped with black, last tarsal joint blackish, otherwise the tarsi not annulated. Segments two, three and four of the costa proportioned 5:3:1, first vein a little thickened apically, crossveins almost meeting, the posterior slightly oblique, located at three-sevenths the length of the wing, sections of the fifth vein proportioned 0.6:0.8:1, anal crossvein perpendicular, base of the anal vein very weak.

One specimen, South Wales, New-York, presented by M. C. Van Duzee.

(2) *Platypalpus mimus*, nov. sp. — Female. Length 2 mm. Pale yellow, the arista and occiput gray, the minute flexor setulæ of the middle legs black. Front and face narrow, white, their sides subparallel; antennæ whitish, the third joint ovate, three-fifths as long as the arista; lower occiput and proboscis yellow, palpi small and white. Mesonotum very tightly dusted, a little more pronounced on the humeri, subshining, setulæ very sparse, humeral bristle large; pleuræ finely white-pruinose except the sternopleural spot; abdomen shining to the end. Anterior femora moderately thickened, the front ones with a dozen small flexor cilia, the middle ones with a posterior row of fine pale setæ, middle tibiæ two-thirds as long as their femora, the terminal spur short blunt and yellow. Wings narrow, third and fourth veins parallel, second, third and fourth sections of the costa proportioned 3.5:2.3:1, posterior crossvein located at three-sevenths the winglength, slightly oblique, placed beyond the anterior a distance equal to the latter, sections of the fifth vein proportioned 0.5:0.6:1, anal crossvein almost perpendicular, base of anal vein completely wanting, marginal cilia equal in length to the anterior crossvein.

Two specimens received from M. C. Van Duzee, who collected them at Gowanda and Niagara Falls, New York, June.

(3) *Platypalpus uncinatus*, nov. sp. — Male. Length 2.2 mm. Light yellow, head black, occiput subshining, front narrow, shining, but slightly divergent above, mouthparts yellow, antennæ pale yellow, outer joint triangular, arista brownish, twice as long as last joint. Thorax shining, scutellum sometimes brown, bristles brown, notal hairs pale and relatively long. Abdomen centrally dark, pygidium long, asymmetrical, open, the central filament consisting of a long strong curved hook, with black point, the right valve ending above in a long

33. Third antennal joint orbicular, one-fifth the arista; epistome more or less pollinose var. *MICROCERUS*, nov. var. (1).
 Third antennal joint tapering and about one-third the arista; epistome polished. 34.
34. Stout, abdomen brownish; third antennal joint ovoid; middle femora with 20 to 23 spines in the posterior flexor row . var. *FLAVIROSTRIS*, Loew, s. str.
 Slender, abdomen yellow; third antennal joint lanceolate; middle femora with 18 to 20 flexor spines var. *DILUTOR*, nov. var. (2).
35. Mesonotum shining, pollinose only along the lateral and posterior edges, or with shining vittæ 36.
 Mesonotum more or less densely but uniformly pollinose, not completely shining 67.
36. Crossveins nearly or quite contiguous, the posterior usually transverse; tibial spur small 37.
 Posterior crossvein beyond the anterior and oblique; spur of the middle tibiæ large and strong; anterior femora ciliate. 62.
37. Arista white, contrasting with the antennæ; thorax nearly bare of hairs and bristles 38.
 Arista black or brown, not contrasting. 39.
38. Arista much longer than the lanceolate third antennal joint; front and face narrow; legs brown, middle femora ciliate with long black bristles; third and fourth veins converging, anal crossvein very oblique. *P. CALLITHRIX*, nov. sp. (3).

finger-like process, which is tipped with a black thorn, the left valve large and broadly triangular. Middle femora closely mucronate below, tibial spur undeveloped. Wings hyaline, veins deep yellow, crossveins meeting, lower outer angle of second basal cell sixty degrees, anal crossvein oblique, base of anal vein obliterated.

Four males and four females, La Suiza, Costa Rica, April-August, Pablo Schild, collector.

(1) *Platypalpus flavirostris* Loew, var. *microcerus*, nov. var. — An interesting variation occurs on Moscow Mountain, Idaho. Five specimens caught during July and August, 1916 and 1918, have the front of the epistome pollinose like the face, the third antennal joint orbicular and shorter than wide so that it is one-fifth as long as the arista. Other specimens captured with these have the last antennal joint short-lanceolate as usual, making the arista about three times this joint, and the epistome is polished. About twenty-three spines occur in the posterior flexor row of the middle femora. The anal crossvein forms an angle of sixty degrees.

(2) *Platypalpus flavirostris* Loew, var. *dilutor*, nov. var. — A slender pale yellow form of the species from Vashon Island, and numerous other places in Western Washington, with lanceolate antennæ, eighteen to twenty flexor spines in the posterior row on the middle femora, the female with the underside of the second basal cell four-fifths as long as the continuation of that vein, the male with the two parts of the fifth vein nearly equal, the anal vein steeply inclined forming an angle of about seventy-five degrees, and the uppermost lamella of the pygidium broadly excised on the outer side, the proximal lobe with four golden bristles.

The typical form of *flavirostris* is stout, brownish, with ovoid third antennal joint, with twenty to twenty-three spines in the posterior flexor row of the middle femora, the two parts of the fifth vein equal and the anal crossvein forming an angle of sixty degrees.

(3) *Platypalpus callithrix*, nov. sp. — Female. Length 3 mm. Black, disk of the thorax shining and nearly bare, legs yellowish, slender, the middle femora with unusually long black flexor setæ, tibiæ without spur, third antennal joint elongate and about one-third as long as the white arista, front and face almost linear, third vein recurved, crossveins approximate, the posterior crossvein oblique, anal crossvein very steep. Occiput blackish, subshining, with a postocellar cordiform cinereous spot, its hairs sparse, facets of the eyes comparatively large, palpi brownish, with a subapical seta; antennæ three-jointed, black, the last joint pubescent, lanceolate, twice as long as wide, with a rather thick white and white-pubescent arista, the shaft of which in the type specimen is black on its middle third. Thoracic bristles short and black, sides of the thorax behind the humeri, and the scutellum rather thinly cinereous pruinose, pleuræ glabrous except their posterior margin, abdomen brownish black, the last two segments pollinose. Front femora with a few long black flexor setæ, middle femora with black setæ

- Arista much shorter than the elongate third antennal joint; front and face broad; hind femora blackish apically, middle femora with fine yellow cilia; third and fourth veins parallel *P. FLAMMIFER*, Melander.
39. Anal cell completely lacking; antennæ black, the third joint broadly oval and one-half the arista; palpi yellow; front shining; tarsi dusky distally, not annulate *P. CUNEIPENNIS*, Melander.
- Anal crossvein and part of anal vein evident, as usual 40.
40. The elongate third antennal joint and arista pubescent; wings marked with blackish spot over crossveins *P. PICTIPENNIS*, Bezzi.
- Arista bare; wings not spotted 41.
41. Base of the antennæ yellow; sides of front parallel or nearly so; coxæ and legs yellow 42.
- Antennæ completely black: if the base of the antennæ is brownish the sides of the front diverge above and the face is broad 47.
42. Front opaque, pleuræ mostly pollinose; tarsi weakly annulate. 43.
- Front and greater part of the pleuræ shining; only the last joint of the tarsi dark. 46.
43. Face much narrower than the front; proboscis yellowish; last two segments of the ♀ abdomen ochraceous; femora scarcely thickened, no tibial spur; hairs of the notum long; third antennal joint long, hairy and equal to the rather stout arista *P. LATERALIS*, Loew.
- Face much narrower than front; only last tarsal joint blackened; proboscis brown; abdominal segments shining except on incisures; legs rather slender, no tibial spur; notal hairs sparse and moderate; third antennal joint hairy and equal to the rather stout arista; pygidium robust, forming about one-third the abdomen *P. TENUIS*, nov. sp. (1).

on each side of the usual two rows of black setulæ, those behind eight in number and longer than the diameter of the femur, middle tibiæ two-thirds as long as their femora. Wings lightly infumated, veins brown, costa not at all thickened, its second, third and fourth sections proportioned 4.2:2.2:1, pedicel of the second and third vein arising near the base of the second basal cell, third vein ending beyond the apex of the wing, convergent with the fourth, the first posterior cell widest at three-fifths its length, crossveins near the basal third of the wing, the posterior arising slightly before the short anterior cross vein, sections of the fifth vein proportioned 0.4:0.5:1, anal crossvein at an angle of thirty degrees, evanescent at its tip, anal vein very weak, vanishing at its base.

Type, Chicago, Illinois, August 10, 1901 (Melander). Another specimen from Niagara Falls, New York, submitted by M. C. Van Duzee, has the arista wholly white and the third vein a little less recurved.

(1) *Platypalpus tenuis*, nov. sp. — Male. Length 2.2 mm. Black, legs entirely pale yellow except the black outer two-thirds of the last tarsal joint, base of antennæ yellow, veins and bristles whitish, disk of mesonotum, polished, front and pleuræ pollinose, crossveins approximate and transverse. Hairs of the occiput long sparse and white; face narrower than the front, gray; epistome shining; proboscis brown, palpi small and yellow; third antennal joint brown, pubescent, triangular, over twice as long as wide and slightly longer than the closely pubescent black arista. Humeri, scutellum, narrow sides of the mesonotum and pleuræ except sternopleura whitish gray pollinose, the usual bristles pale yellow, acrostichal and dorsocentral hairs individually distinct, together forming four rows, the interspaces glabrous, lateral hairs very sparse. Abdomen entirely shining black, nearly bare, last sternite with a conspicuous fringe of pale yellow hairs, pygidium forming a large rounded termination to the abdomen, its valves not fringed. Legs rather slender, front femora not ciliate, middle femora with about twenty fine blackish setulæ in the anterior row and about twelve fine yellowish setæ in the posterior row, no other bristles,

Face as broad as the front; proboscis brown to black; terminal segments of the ♀ abdomen shining; anterior femora more or less thickened; notal hairs short and very sparse. 44.

44. Penultimate segment of ♀ abdomen long and swollen; pygidium enormously enlarged, nearly as bulky as the remainder of the abdomen; proboscis brown; third joint of the antennæ ovate, shorter than the arista; middle tibiæ with a pronounced spur. P. SATYRIACUS, nov. sp. (1).

Terminal segments of the ♀ abdomen small; proboscis black; middle tibiæ at most with a small spur. 45.

45. First posterior cell narrowed apically, about one-third the costal margin of the submarginal cell in width; styles of ♀ abdomen three times as long as wide; incisures not differentiated. P. COLLATERALIS, nov. sp. (2).

First posterior cell not narrowed, apically about one-half the costal side of the submarginal cell; styles five times as long

middle tibiæ five-sixths as long as the femora, spur minute and yellow. Halteres, calypteres and root of wings very pale yellow, wings three times as long as wide, costal sections proportioned 5:4:3:1, first posterior cell ending at tip, its veins nearly straight and parallel, sections of the fourth vein proportioned 1:2, of the fifth vein, 3:4:8, posterior crossvein transverse, slightly in advance of the anterior, anal vein weak but complete.

Female. Fourth tarsal joint apically infuscated. Ovipositor shining except on incisures, styles four times as long as wide.

Male type from Nahcotta, Washington, May 24, 1917; female from Vashon, Washington, May 28, 1917; five paratypes from Shelton, Quilcene and Piedmont, Washington, July (Melander).

(1) *Platypalpus satyriacus*, nov. sp. — Length 2 mm. Readily distinct by the swollen genitalia of both sexes; related to *lateralis*, but differing in the broader face, longer arista, pronounced tibial spur and sparse short notal hairs. Black, with a castaneous tinge, head opaque gray pollinose except the shining epistome; face short and about as broad as the front; palpi yellow, proboscis dark castaneous; antennæ yellowish at the base, the third joint darker toward the tip, conical, two to two and one-half times as long as broad, not hairy, and shorter than the rather thick arista; vertical hairs yellow. Center of the mesonotum broadly shining, sides and pleuræ whitish pollinose, sternopleuræ largely shining, bristles yellow. Abdomen of male with long hairs, especially apically, the genitalia greatly enlarged, in bulk about equal to the remainder of the abdomen, the penis visible as a strong black hook, the left valve strongly emarginate on the right-hand edge and apically fringed; hairs of female abdomen normal, incisures ochraceous, last tergite elongate, as long as two or three of the preceding segments, overlapping the ovipositor and shining blackish brown, styles short, brown. Legs yellow, anterior femora moderately robust, about sixteen black setulæ in the posterior row of the middle femora, middle tibiæ five-sixths as long as their femora, with an acute yellow spur slightly shorter than the diameter of the tibia, last tarsal joint darkened. Wings very long, veins yellow, third and fourth veins gently converging apically, second and third sections of the costa of the male somewhat thickened, the second, third and fourth sections proportioned 1.2:1:0.2, sections of the fifth vein 1:1.2:2.2, marginal cilia of male equal to the anterior crossvein in length, of the female short.

Four specimens, Ungava Bay of Hudson Straits, Northern Labrador, collected by L. M. Turner: a pair deposited in the U. S. National Museum.

(2) *Platypalpus collateralis*, nov. sp. — Female. Length 2 mm. Closely related to *lateralis* Loew, but the latter differs in having a narrowed face and front, yellow proboscis, the last two segments of the female abdomen ochraceous, the femora more slender, no tibial spur, and long mesonotal hairs. Black shining, sides of the thorax white pollinose, legs yellow, tibial spur short, tarsi becoming dusky broad at tip, crossveins meeting and transverse; sides of the front parallel, face quite as wide as the front, proboscis black, mesonotum with sparse short whitish hairs, abdomen entirely shining black, fourth vein gently converging toward the third. Front, face and occiput opaque gray pollinose, the face very short, epistome shining; palpi white; base of the antennæ brown (the last joint lacking in the specimens before me); vertical and ocellar bristles long and whitish. Humeri and sides of the mesonotum whitish pollinose like the pleuræ, the sternopleuræ largely polished, bristles whitish; styles about three times as long as broad, black. Anterior femora somewhat thickened, the middle pair with about fifteen black setulæ in the posterior row. Calypteres with a yellow fringe. Wings nearly hyaline, with pale veins, second section of the costa somewhat swollen, the second, third and fourth sections proportioned 5:3:1, third vein straight, ending at the wing-tip, sections of the fifth vein proportioned 1:1.5:2.5, marginal cilia shorter than the anterior crossvein.

Alaska, several places: Harriman Expedition.

- as wide; incisures of the abdominal segments ochraceous;
 proboscis and palpi obliquely porrect; robust species . . . P. PRORSUS, nov. sp. (1).
46. Pleuræ entirely shining, only the pectus above the front coxæ
 pollinose; base of the antennæ fuscous (*montanus*, Melander). P. SPLENDENS, new name.
 Pollen conspicuous along the notopleural suture and on the
 propleuræ; base of the antennæ yellow (*gilvipes*, Coquillett). P. XANTHOPODUS, new name.
47. Femora more or less marked with black, the hind femora
 always dark toward the apex; tarsi not annulate 48.
 Legs yellow and usually slender 53.
48. Front femora with a round black apical spot, hind femora
 dark toward apex, legs otherwise yellow; middle femora
 with regular long black bristles below; tibiæ without spur. P. APICALIS, Loew.
 Front femora without round black spot; middle femora with
 long black bristles below; tibiæ without spur; middle
 femora, anterior tibiæ and all tarsi black P. GESTICULOR, nov. sp. (2).
 Front femora without round black spot, middle femora at
 most with weak pale bristles beneath; legs otherwise
 colored 49.
49. Front rather narrow and subpollinose; anterior femora
 blackish above; third antennal joint oval 50.
 Front shining and usually broad; spur of the middle tibiæ
 minute or wanting, anterior femora not blackish. 51.

(1) *Platypalpus prorsus*, nov. sp. — Female. Length 3 mm. Related to *lateralis* Loew, but robust, with broad face, black proboscis, incisures of the abdomen narrowly ochraceous and with short sparse notal hair. Head opaque gray pollinose, except the shining epistome; sides of the front nearly parallel, face very short; proboscis geniculate, bending forward below, although this may be accidental in this specimen, the yellowish palpi also porrect; bristles yellowish; base of the antennæ reddish, the third joint conical, brown, hairy, about two and one-half times as long as wide and subequal to the arista. The hairs of the third joint are shorter and the arista is thinner than in *lateralis*. Thorax shining black, the sides, encroaching above the humeri, whitish pollinose, like the pleuræ, sternopleuræ largely shining, bristles whitish, three pairs of scutellar bristles; terminal segments of the abdomen shining, the styles slender and hairy, about five times as long as wide. Legs yellow, the tarsi very weakly annulate. Middle femora robust, about seventeen black setule in the posterior row, middle tibiæ five-sixths as long as their femora, no tibial spur but the flexor end sharply truncated. Veins brownish, the second, third and fourth sections of the costa proportioned 4.5 : 2.3 : 1, third vein ending before the wing-tip, nearly parallel with the fourth, sections of the fifth vein proportioned 1 : 1.2 : 2.2, marginal cilia shorter than the anterior crossvein.

One specimen, in the U. S. National Museum, collected by L. M. Turner, at Ungava Bay of Hudson Straits, Northern Labrador.

(2) *Platypalpus gesticulor*, nov. sp. — Male. Length 2.3 mm. Body black, notum mostly shining, legs variegated, spur of middle tibiæ lacking, antennæ black, third antennal joint very small. Front broad, olivaceous, face gray, epistome shining, proboscis black, palpi yellow, rather prominent, cephalic bristles very small; third antennal joint ovate, about one-fourth the length of the slender arista. Mesonotum with double but contiguous acrostical row and dorsocentral patches of pubescence, notopleural suture broadly pollinose, pleuræ mostly bare and polished; bristles reduced, yellowish, no humeral. Abdomen shining, with loose yellowish hairs, pygidium globular forming a rather large rounded ending to the abdomen. Coxæ pale yellow, all tarsi black, front femora luteous, front tibiæ black except toward knees, middle femora black except toward base, with fourteen strong black setæ in the posterior row, middle tibiæ black, the apical third with matted golden pubescence, hind femora and tibiæ each dark on the distal half. Calypteres, fringe and halteres yellow. Wings hyaline, three times as long as wide, veins thin and brown, costal sections proportioned 6 : 4 : 2.3 : 1, third vein ending at the middle of the wing-tip, parallel with the fourth, crossveins located near one-third the wing-length, the distance between them less than the length of the anterior crossvein, posterior crossvein nearly transverse, outer sections of the fifth vein proportioned 3 : 5, anal crossvein reflexed at an angle of 50 degrees, anal vein faint.

Female. Color of legs much less intensive.

Foot of Lake McDonald, Glacier National Park, Montana; August 14, 1916 (Melander).

50. Spur of the middle tibiæ as long as the diameter of the tibiæ, base of the hind femora pale, anterior femora with flexor cilia *P. DIVERSIPES*, Coquillett.
 Middle tibiæ without spur; hind femora entirely blackish, femora not ciliate *P. DIREPTOR*, nov. sp.
51. Middle femora without flexor setæ and with 15 setulæ in posterior row; front narrow; pleuræ shining; third antennal joint slightly shorter than arista; bristles yellow *P. NITIDIPLEURA*, nov. sp. (1).
 Middle femora with flexor setæ and with about 20 or more posterior setulæ; front broad 52.
52. Third joint of the antennæ three times as long as broad, subequal to its arista; bristles brown; pygidium rather large and vertical; upper pleuræ pollinose *P. BICORNIS*, nov. sp. (2).
 Third antennal joint oval, much shorter than its arista; bristles black; pygidium minute and globular; pleuræ shining *P. PUDENS*, nov. sp. (3).

(1) *Platypalpus nitidipleura*, nov. sp. — Female. Length 2 mm. Entirely polished black, legs yellow, the hind femora apically dark; crossveins contiguous and transverse; antennæ black, the third antennal joint long, subequal to the arista. Head globular, polished, vertical bristles black; front narrower than the width of the basal antennal joint, its sides parallel; face narrow, its lower half gray pruinose, epistome shiny; third antennal joint two and one half times as long as broad; proboscis black, palpi white, ovoid, rather pointed, with a pair of marginal white setæ. Notum nearly bare, its bristles yellowish, only a faint trace of pollen along notopleural suture and on metanotum. Abdominal hairs fine and very sparse; terminal segments not dusted. Front tarsi uniformly dusky, posterior tarsi dusky beyond base; about fifteen pronounced setulæ in posterior row of middle femora, but no flexor setæ; middle tibia three-fourths length of femora, the apical spur not developed. Halteres white. Wings hyaline, veins yellow at base, otherwise black and thin, costa rather pronounced beyond end of first vein, third and fourth veins straight, slightly diverging, third vein ending distinctly before wing-tip, sections of third vein 1 : 25, of the fourth vein, 2 : 3 : 6, cilia of hind margin short.

A single specimen taken in a cottonwood thicket two miles south of Gardiner, Montana, in the Yellowstone Park, August 17, 1919 (Melander). It is related to *bicornis* and *pudens*, but is quite distinct.

(2) *Platypalpus bicornis*, nov. sp. — Length 2 mm. Black, shining, the upper half of the pleuræ sericeous, legs brownish, spur of the middle tibiæ minute, front broad, antennæ porrect, crossveins meeting. Head wider than deep, occiput and face subshining, front and epistome polished; palpi elongate oval, yellowish, with a single apical seta; basal joint of the antennæ minute, third joint subulate, over three times as long as broad, slightly longer than the pale-tipped arista; one pair each of black vertical and ocellar bristles. Mesonotum nearly bare, only four pairs of weak acrostichal setulæ, notopleural suture, scutellum, metathorax, and upper half of the pleuræ sericeous; one pair each of the usual thoracic bristles; abdomen shining, including the genitalia, ovipositor compressed, pygidium rather large and erect. Base of posterior coxæ blackish, posterior femora infuscated apically, the hind ones darkest, front femora not ciliate beneath, but densely and finely pubescent instead, middle femora not bristly in front, posteriorly with four long yellow bristles, tarsi blackish apically. Veins blackish, costa slightly swollen at the end of the first vein, its second, third and fourth sections proportioned 4 : 2.6 : 1, third and fourth veins straight and parallel, crossveins meeting on the basal third of the wing, nearly transverse, sections of the fifth vein proportioned 0.3 : 0.5 : 1, anal crossvein forming an angle of fifth degree, base of the anal vein wanting, marginal cilia short.

Twenty-eight specimens, type from Bellingham, Washington, July 29. Paratypes from Brinnon, Everett, Granite Falls, Index, Lake Cushman, Lilliwaup, Quilcene, Tacoma and Tulalip, all in Washington (Melander).

(3) *Platypalpus pudens*, nov. sp. — Male. Length 1.5 mm. Black, shining, bristles black, legs dark testaceous, posterior coxæ and distal two-thirds of the hind femora blackish, tibial spur minute, front very broad, third antennal joint short ovate, crossveins meeting. Head wider than deep, occiput and face subshining, front and epistome polished; palpi small, elliptical, blackish, with one apical dark seta, proboscis short; antennæ two-jointed, the outer joint scarcely longer than broad, less than one-half as long as the arista; two pairs of vertical and one of ocellar bristles, long. Mesonotum nearly bare, but three pairs of acrostichal setulæ present, humeral bristles small, one pair each of notopleural, supraalar, postalar, dorsocentral and scutellar bristles; pleuræ polished, the metapleuræ and scutellum alone sub-pollinose; abdomen shining, pygidium minute. Femora not ciliate, middle femora with four stiff black setæ in back of the second row of setulæ, last tarsal joints blackish. Veins pale, costa

53. Tarsi strongly annulate; coxæ entirely yellow; ten coarse setæ in the posterior flexor row of middle femora; pygidium large and erect (*P. inops*, Melander). 54.
 Tarsi not annulate; 15 to 25 setulæ in the postero-flexor row of middle femora 55.
 54. Third antennal joint much shorter than arista; anal crossvein forming angle of about 50 degrees *P. inops*, Melander, s. str.
 Third antennal joint subequal to arista; anal crossvein forming angle of about 70 degrees var. *ÆQUICORNIS*, nov. var. (1).
 55. Arista much longer than third antennal joint; pygidium globose; coxæ yellow 56.
 Arista subequal to third antennal joint; pygidium rather erect and shining; base of coxæ more or less blackish; mesonotum with two dorsocentral bare stripes; palpi normal; front femora with about ten flexor cilia (*P. juvenis*, nov. sp.) 60.
 56. Mesonotal hairs arranged in rows alternating with bare spaces; pygidium robust and polished 57.
 Mesonotum covered uniformly with short pubescence; pygidium more or less pollinose or pubescent 58.
 57. Palpi small and dusky; base of antennæ infuscated, third joint lanceolate; third vein ending just in advance of extreme wing-tip; hypopleuræ pollinose *P. alumnus*, nov. sp. (2).
 Palpi large and glistening white; antennæ black, third joint

slightly thickened at the end of the first vein, its second, third and fourth sections proportioned 3.5 : 2.2 : 1, third and fourth veins straight and parallel, posterior crossvein nearly transverse, arising a little before the short anterior crossvein, sections of the fifth vein proportioned 0.3 : 0.5 : 1, anal crossvein weak, forming an angle of fifty degrees, anal vein wanting, marginal cilia short.

Type from Mount Constitution, Orcas Island, Washington, July 31, 1909; paratype from Bovill, Idaho, June 17, 1911 (Melander).

(1) *Platypalpus inops*, var. *æquicornis*, nov. var. — The typical form of *inops* originally described from Wyoming, occurs also in Glacier National Park, Montana. At this place also the writer took a female *Platypalpus* on August 14, 1916, which conforms most closely with *P. inops*, but differs in having the third antennal joint subequal to the arista instead of about one-third as long. The anal crossvein is also more nearly perpendicular, forming an angle of about 70 degrees with the fifth vein. The anal crossvein of *inops* is more reflexed, making an angle of about 50 degrees.

(2) *Platypalpus alumnus*, nov. sp. — Male. Length 2 mm. Body black, notum largely polished, sternopleuræ with large shining spot, hypopleuræ entirely pollinose, notal hairs seriate; pygidium large, globose, shining; legs yellow, tarsi not annulate, tibial spur very small; sides of front diverging, antennæ black, the base brownish, third joint conical, arista black, one-half longer than the third joint, palpi small and dusky; crossveins contiguous and transverse, third vein ending just before wing-tip, anal vein almost complete but weak. Head cinereous pollinose, occipital hairs yellow and inconspicuous, vertical bristles brown, face cinereous, nearly twice as long as wide, epistome shining, proboscis black. Sides of notum cinereous, bristles small and brownish, central scutellars moderately long, a bare stripe on each side of the double acrostichal row of pale hairs. Abdomen shining, quite bare, the two large pygidial valves golden fimbriate at edge. Seventeen short dark setæ in posterior flexor row of middle femora and nineteen minute denticles in anterior row, last two joints of tarsi slightly brownish. Calypteres, fringe and halteres pale yellow. Wings hyaline, veins pale brown, anal angle reduced, the anal vein close to margin, first posterior cell a little the widest at three-fifths its length, sections of fifth vein proportioned 3 : 4 : 9.

One male and two females, taken in the alpine meadow at the Continental Divide near Isa Lake, 8200 feet altitude, Yellowstone Park, Wyoming, 8 Aug. 1918 (Melander).

- oval; third vein ending beyond wing-tip; hypopleuræ
largely polished *P. GLACIALIS*, nov. sp. (1).
58. Front pollinose; mesonotal pubescence conspicuous; palpi
brownish yellow *P. PUBESCENS*, nov. sp. (2).
- Front shining; mesonotal pubescence usually short; palpi
pale yellow 59.
59. Middle femora with 8 yellow flexor bristles, front femora
with 17 short pale flexor cilia; palpi very large, nearly as
long as the proboscis; halteres yellow *P. PECTINATOR*, Melander.
- Middle femora without conspicuous bristles; front femora not
ciliate; palpi normal; halteres tipped with black *P. SIMPLICIPES*, nov. sp. (3).

(1) *Platypalpus glacialis*, nov. sp. — Male. Length 2.3 mm. Body black, legs including the coxæ yellow, notum not pollinose but finely pubescent between broad dorsocentral glabrous rows, spur of middle tibiæ not developed, tarsi not annulate, antennæ black, the third joint short, ovate, about one-fourth the arista in length, palpi whitish and large, pygidium large, globose and subshining, crossveins approximate, the posterior nearly transverse. Occiput with olivaceous pollen, its upper hairs golden, ocellar bristles piceous, front lightly dusted, short, its sides diverging, face very narrow, gray, epistome polished, proboscis short, piceous: first and second antennal joints fused, third as long as deep. Notal pubescence evident but fine and rather sparse, humeri and sides of notum with light pollen, lateral bristles yellow, the humeral short, sternopleuræ polished. Abdomen shining, nearly bare, right dorsal valve of the pygidium deeply bifid, left valve small and triangular. Legs slender, front femora weakly ciliate, middle femora with about twenty black setulæ in the anterior row and about sixteen longer setulæ in the posterior row, no yellow bristles, middle tibiæ about seven-eighths as long as the femora, tarsi vaguely becoming dusky apically. Calypteres, fringe and halteres yellow. Wings hyaline, two and a half times as long as broad, veins thin and blackish, costa black at end of first vein, costal sections proportioned 7 : 5 : 3.5 : 1, third vein ending at wingtip, very slightly converging toward fourth, crossveins separated by less than the length of the anterior and by one-half the length of the posterior, located at two-fifths the wing-length, sections of the fifth vein proportioned 2 : 3 : 5, anal crossvein straight, evanescent apically and reflexed at an angle of fifty degrees, anal vein faintly impressed, anal angle weak.

Female. Last two segments ochraceous, styles slender.

Two specimens, Glacier National Park, Montana, August 14, 1916 (Melander).

(2) *Platypalpus pubescens*, nov. sp. — Male. Length 3 mm. Body black, the venter yellowish, legs including the coxæ yellow, notum not pollinose but uniformly and rather densely pubescent, spur of middle tibiæ undeveloped, tarsi not annulate, antennæ black, the third joint one-fourth as long as the arista, palpi brownish, pygidium large, globose and pollinose, crossveins approximate, the posterior nearly transverse. Occiput finely dusted, its upper hairs dusky, vertical and ocellar bristles black, front finely pollinose, two and a half times as long as wide at the middle, face and epistome shining black, proboscis short and brown, palpi brownish yellow; antennæ three jointed, the third joint conical, scarcely longer than wide. Extreme sides of the mesonotum and the pleuræ white pollinose, disc of notum uniformly, closely and conspicuously white-pubescent, lateral bristles yellow, no humeral, one pair of rather distant scutellars; sternopleuræ polished except the extreme upper part. Abdomen not tapering, shining, its hairs rather dense, dorsal valve large, circular and not fringed. Trochanters tipped with black, front femora not ciliate, middle femora robust, with about thirty minute black setulæ in the anterior flexor row and twenty-one setulæ in the posterior row, the latter flanked by a few yellow setæ, middle tibiæ almost three-fourths the femora, only an indication of the spur present, tarsi gradually becoming dusky toward the tip. Calypteres and knob of halteres whitish, fringe and root of halteres luteous. Wings hyaline, two and a fourth times as long as wide, veins narrow and piceous, sections of the costa proportioned 6 : 3.5 : 2.5 : 1, third vein gently recurved and ending at the wing-tip, first posterior cell widest at the apex, last two sections of the fifth vein subequal, anal crossvein straight, reflexed at an angle of fifty degrees, ends of the anal vein evanescent.

Female. End of abdomen not ochraceous, the styles tumid.

Seven specimens, Union Flat, near Pullman, Washington, July 16, 1916 (Melander).

(3) *Platypalpus simplicipes*, nov. sp. — Male. Length 2 mm. Blackish, largely shining, legs yellow, without evident setæ, crossveins meeting. Head globular, occiput lightly dusted, subshining, front shining, moderately wide, broadening above, face short, black; palpi elongate oval, as long as the face, yellow, with a few marginal white setulæ, proboscis brown; antennæ three-jointed, the last joint short-ovate, scarcely longer than broad, one-third as long as the rather pubescent arista; vertical bristles small. Mesonotum uniformly pubescent, no discal setulæ, no humeral bristle, one notopleural, one supraalar, one prescutellar, four scutellar, the outer ones small; upper half of the pleuræ lightly pruinose, sternopleuræ and hypopleuræ shining; abdomen shining, the pygidium globular and puberulent, the fringe of the upper valve long but fine. Legs slender, front femora

60. Mesonotal hairs sparse; two single rows of acrostichal hairs 61.
 Mesonotal hairs dense, the acrostichal area covered with
 irregular hairs; ovipositor tipped with pollen; veins
 blackish P. JUVENIS,
 var. HYÆNOIDES, nov. var. (1).
61. Ovipositor tipped with pollen; mesonotum without lateral
 hairs; wings nearly three times as long as broad, veins
 yellowish; last sternite of ♂ abdomen with a fringe of
 yellow bristles. P. JUVENIS,
 var. JUVENIS, s. str. (2).
- Ovipositor completely shining; mesonotum with sparse lateral
 hairs; wings broader, veins brown; abdomen not fringed. P. JUVENIS,
 var. PUERINUS, nov. var. (3).
62. Disk of thorax uniformly shining; front tibiae incrassate 63.
 Thorax with two shining vittae more or less connected with
 a supra-alar shining spot; tibiae not swollen (*P. vittatus*,
 nov. sp.) 66.

not ciliate, middle femora not setose, biserially black-setulose as usual with seventeen setulae to each row, middle tibiae two-thirds as long as their femora, the apical spur minute. Halteres tipped with a small black spot. Veins thin and brown, the second, third and fourth sections of the costa proportioned 3 : 2.5 : 1, third vein recurved, ending slightly beyond the tip of the wing, fourth vein more nearly straight, crossveins at two-fifths the wing-length, meeting, the posterior slightly oblique, twice as long as the anterior, sections of the fifth vein proportioned 0.4 : 0.6 : 1, anal crossvein at an angle of fifty-five degrees, anal vein weak, vanishing at its base; marginal cilia shorter than the anterior crossvein.

One specimen, Tacoma, Washington, August 27, 1911.

(1) *Platypalpus juvenis*, var. *hyænoides*, nov. var. — A female from Vashon, Washington, May 28, 1917, differs from the following varieties in having the mesonotal hairs more abundant, thus resembling the species *P. glacialis*, the hairs between the dorsocentral glabrous stripes irregularly placed. Third antennal joint equal to the arista; vertical bristles blackish; end of ovipositor opaque; wings three times as long as broad, veins blackish, stigmal thickening pronounced.

(2) *Platypalpus juvenis*, var. *juvenis*, s. str. — Length 2 mm. Black, disk of the mesothorax shining and nearly bare of hairs, legs yellow, tibial spur minute, tarsi not annulate, antennae black, the last joint conical and subequal to the arista, front and face densely cinereous, crossveins meeting. Occiput densely cinereous pollinose, sides of the rather broad front diverging above; palpi broadly oval of moderate size, yellow, silky in front and with a single white apical seta; antennae two-jointed, the basal joint sometimes brown, the outer joint two times as long as wide and slightly shorter than the arista; two pairs of relatively strong yellow vertical bristles and one pair of ocellars. Ifumeri, sides and hind margin of the mesonotum and pleurae except a large sternopleural spot, cinereous pruinose, one pair each of the usual bristles yellow, two rows of acrostichal hairs, dorsocentral stripes bare, sides of notum with a few fine white hairs; abdomen shining black, last sternite ♂ with a dense fringe of yellow setae, pygidium large, its dorsal valve produced backwards as a rather slender curved, nearly smooth process which bears a yellow fringe on its right side, apex of the ovipositor pollinose. Base of the posterior coxae a little darkened, cilia of the front femora very short and sparse, middle femora with fourteen black setae in the postero-flexor row and without additional yellow setae, middle tibiae five-sixths as long as their femora. Wings nearly three times as long as wide, veins yellowish, costa not thickened, its second, third and fourth sections proportioned 4 : 2.5 : 1, third and fourth veins parallel, the third vein ending at the tip of the wing, posterior crossvein nearly transverse, twice as long as the anterior, located at three-sevenths of the wing-length, sections of the fifth vein proportioned 0.4 : 0.6 : 1, anal crossvein forming an angle of sixty degrees, anal vein almost wanting, marginal cilia short.

Nine specimens, Kokanee Mountains, 7000 feet, British Columbia, collected by R. P. Currie for the U. S. National Museum; Dubois, Wyoming, September, collected by W. M. Wheeler; and Mount Rainier, Washington (Melander). A specimen from San Diego, California (E. P. Van Duzee) has the pygidium more globular.

(3) *Platypalpus juvenis*, var. *puerinus*, nov. var. — A series of specimens from the Kokanee Mountains in British Columbia and also from Mount Katahdin, Maine, differs as follows: the third antennal joint is usually slightly longer than the arista, the vertical bristles are brown, the end of the abdomen ♂ lacks the conspicuous fringe, the dorsal pygidial valve is more blunt, more or less rugulose and not elaborately fringed, the ovipositor is completely shining, the sides of the mesonotum almost devoid of hairs and the wings are broader, with stronger, brownish veins and with the end of the first vein thickened.

63. Tarsi black; bristles, coxæ and veins blackish; tibial spur moderate and stout; mesonotum pollinose on sides and rear *P. verpus*, nov. sp. (1).
 Tarsi strongly annulate; bristles, coxæ and veins yellow; tibial spur acute 64.
 64. Mesonotum mostly shining, not pollinose in front of the scutellum; last section of the fifth vein distinct (*P. politus*, nov. sp.). 65.
 Center of the mesonotum shining; outer angle of the second basal cell rounded, last section of the fifth vein obsolete; base of the antennæ yellow *P. enervatus*, nov. sp. (2).
 65. Fourth vein very perceptibly sinuous; base of the antennæ yellow *P. politus*, nov. sp. (3).

(1) *Platypalpus verpus*, nov. sp. — Male. Length 2 mm. Black, disk of mesonotum polished, legs brownish yellow, front tibiæ swollen, veins, bristles and antennæ black, crossveins separated. Occipital hairs silky and white, two vertical bristles erect, blackish; face with parallel sides, white, front narrow, gray pollinose; ground color of the palpi piceous, the setæ whitish, proboscis black; third antennal joint pyriform, two-thirds as long as the arista. Humeri, notopleural sutures, rear of mesonotum and scutellum gray pollinose; acrostichal and dorsocentral rows and lateral patches of setulæ present; one humeral, three prealar, one posterior dorsocentral and the central scutellar bristles evident; pollen of the pleuræ silvery gray and dense, about two-thirds of the sternopleuræ bare. Abdomen shining, its hairs sparse and dusky, pygidium large and obliquely ascending and rounded, fringe of the left dorsal valve long and dark. Base of the coxæ blackish, front femora stout, with twelve pale flexor setæ, middle femora with about eighteen short black setulæ in each flexor row, middle tibiæ five-sixths as long as their femora, the terminal spur rather short, stout and black, hind knees infuscated. Halteres with white knobs; calypteres dusky. Wings three times as long as wide, anal angle rather pronounced, veins strong and blackish, costal sections proportioned nearly 4 : 3 : 2 : 1, third vein nearly straight, fourth vein curving and parallel with the third on the outer half, posterior crossvein rather oblique, sections of the fifth vein, 2 : 3 : 2.5, base and apex of anal vein lacking.

Holotype, Union Flat, near Pullman, Washington, June 3, 1918 (Melander).

(2) *Platypalpus enervatus*, nov. sp. — Male. Length 2 mm. Black, sides and back of the mesonotum densely cinereous pollinose, the center of the disk polished, bristles yellow. Head cinereous, face and front rather narrow, their sides parallel, epistome shining; antennæ two-jointed, the basal joint yellowish, the outer joint black, ovate, nearly twice as long as wide and three-fourths as long as the arista; palpi oval, with white setæ, proboscis black. Thorax nearly bare, but with a group of setæ about the notopleural bristle; pleuræ densely whitish pruinose, the sternopleural spot of moderate size; abdomen polished, pygidium more or less triangular in outline and rather small. Legs including the coxæ light yellow, the tarsi strongly annulate, front femora as thick as the middle ones, with twelve stiff pale cilia beneath, front tibiæ swollen, middle femora with a posterior row of twelve pale setæ, the middle tibiæ nearly as long as their femora and with a strong black-tipped spur. Veins pale, third vein ending at the wing-tip, straight, subparallel with the fourth, second, third and fourth sections of the costa proportioned 3.2 : 2.3 : 1, the costa slightly thickened beyond the first vein, posterior crossvein rather oblique, slightly before the middle of the wing, much beyond the anterior crossvein, rounding into the fifth vein, the last section of which, together with the anal crossvein and the anal vein, obsolete, marginal cilia very short.

One specimen. San Diego, California, May, collected by E. P. Van Duzee.

(3) *Platypalpus politus*, nov. sp. — Male. Length 2.6 mm. Robust, black, dorsum shining, legs light yellow, femora ciliate, tibial spur strong, tarsi annulate, antennæ largely yellow, posterior crossvein at the middle of the wing. Occiput finely cinereous dusted, front rather narrow, its sides parallel, densely whitish pruinose, face white, epistome shining; palpi golden yellow, elongate oval, with whitish setæ and long apical bristle, proboscis short, black; antennæ two-jointed, the outer joint short-ovate, its tip black, the arista twice as long as the outer joint; vertical bristles yellow and short, one pair of ocellar and one of vertical bristles. Humeri, notopleural sutures and pleuræ densely whitish pruinose, the glabrous spot of the sternopleuræ moderate in size, scutellum and metanotum subshining; the usual bristles yellow, setulæ very sparse and fine; abdomen shining, pygidium small. Legs robust, front tibiæ inflated, larger than the others, middle tibiæ nearly as long as their femora. Veins brown, costa a little thickened between the first and second veins, its second, third and fourth sections proportioned 4.5 : 2.4 : 1, third vein straight, fourth vein with a perceptible backward curvature and then turning forward and parallel with the third at the tip, the first posterior cell widest at its middle and ending at the apex of the wing, posterior crossvein nearly transverse, one-third longer than the anterior, the distance between

- Third and fourth veins subparallel; antennæ black. *P. POLITUS*,
var. *NITENS*, nov. var. (1).
66. Legs reddish yellow, tarsi becoming piceous apically *P. VITTATUS*, nov. sp. (2).
Middle femora above and hind femora ringed preapically
with black, tarsi black except at base *P. VITTATUS*,
var. *PERIMERUS*, nov. var. (3).
67. Spur of the middle tibiæ shorter than the diameter of the tibia. 68.
Spur of the middle tibiæ at least as long as the diameter of
the tibia. 83.
68. Crossveins meeting and transverse; spur of the middle tibiæ
minute or wanting 69.
Posterior crossvein more or less oblique and located beyond
the anterior; at least base of the antennæ yellow, third
joint ovate, less than twice as long as wide; bristles
yellow; spur of the middle tibiæ small but evident, middle
femora ciliate beneath; anal cell incomplete 76.
69. Abdomen more or less pollinose; femora not thickened, the
middle femora with 12 setulæ in the posterior row and no
bristles; base of the antennæ yellow, the third joint ovate;
pleuræ entirely pruinose *P. CANUS*, Melander.

the crossveins equal to the anterior crossvein, sections of the fifth vein proportioned 1 : 1.5 : 1, anal crossvein at an angle of seventy-five degrees, evanescent toward its end, anal vein indicated only by a very faint fold beyond the anal crossvein, marginal cilia very short

One specimen, presented by J. M. Aldrich, who collected it at Sierra Morena Mountains, California, April 3, 1906.

(1) *Platypalpus politus*, var. *nitens*, nov. var. — Several specimens differ from the preceding form in having the antennæ black and the third and fourth veins nearly parallel. The represent the following localities: Redwood City, California (J. M. Aldrich); Kerr County, California (W. M. Wheeler); Atherton, Missouri (C. F. Adams), and Washington, D. C. (Knab and Malloch).

(2) *Platypalpus vittatus*, nov. sp. — Length 2.9 mm. Front cinereous, its sides subparallel, face and epistome white-pollinose; palpi black, the exterior side overlaid with white, oval, one-third as long as the black proboscis; antennæ black, three-jointed, the base of the second joint shining, the third joint elongate-ovate, nearly three times as long as broad, short-pubescent beneath, the arista two-fifths longer than the third joint; one pair each of dusky vertical and ocellar bristles. Thorax with a shining black stripe on each side of the middle between the acrostichal and dorsocentral rows, expanding laterally on the posterior part of the notum towards the base of the wings, elsewhere with cinereous pollen on a black ground, the pleuræ whiter, sternopleural spot large; abdomen polished black, sparsely hairy, pygidial valves inconspicuous, subdorsal pits prominent. Legs testaceous, base of the posterior coxæ black, front femora biserially ciliate beneath, front tibiæ as thick as the middle ones, middle femora yellow-setose in back of the rather coarse black setulæ, middle tibiæ two-thirds as long as their femora, their spur strong and black, tarsi blackish beyond the base. Veins reddish brown, costa not thickened, its second, third and fourth sections proportioned 5 : 3 : 1, third and fourth veins slightly curving, the first posterior cell widest near the middle, posterior crossvein at the middle of the wing, rather oblique, twice as long as the anterior which is equal in length to the space between the crossveins, sections of the fifth vein proportioned 0.8 : 1.1 : 1, base and apex of the anal vein wanting, the anal crossvein forming an angle of seventy degrees, evanescent, marginal cilia as long as the anterior crossvein.

Five specimens, Converse County, Wyoming, received from Professor Wheeler, and Omak, Washington (Melander). In two of the specimens the shining vittæ of the mesonotum are separated by a pollinose stripe from the supra-alar spot.

(3) *Platypalpus vittatus*, var. *parlimerus*, nov. var. — Seven specimens from Chin and Bow Slope, Alberta, collected by Walter Carter from alfalfa, May 30 — June 5, 1923, differ from the preceding in having the legs marked with blackish. This darkening is variable, in its extreme extent forming a dorsal steak on the anterior femora, a broad preapical ring on the posterior femora, the hind tibiæ piceous and all the tarsi black. The lighter colored individuals lack the dorsal streak of the front femora, the preapical ring of the middle femora, and their hind tibiæ are blackened only at the extremity. Types in Canadian National Museum and author's collection.

- Abdomen shining, or if pollinose, the species disagrees with the other characters 70.
70. Middle femora with flexor bristles in addition to two rows of setulæ 71.
- Middle femora without bristles; antennæ black; mouth-opening not unusually wide 73.
71. Antennæ, palpi and femoral bristles black; mouth-opening normal; coxæ darkened; epistome polished *P. LUCTATOR*, nov. sp. (1).
- Base of antennæ yellow; palpi and femoral bristles yellow; mouth-opening wide; coxæ yellow (*P. hians*, Melander) 72.
72. Face broader than long, epistome pollinose; thoracic bristles yellow; halteres yellow *P. HIAN*S, Melander, s. str.
- Face as broad as long, epistome shining; thoracic bristles black; halteres blackish var. *FUSCOHALTERATUS*, Melander.
73. Third antennal joint pubescent, subulate, over three times as long as wide, longer than its arista; coxæ more or less blackish at the base, middle femora stout and usually with a few bristles on the anterior side; costa with a strong thickening at the end of the first vein 74.
- Third antennal joint ovate, not more than two times as long as wide and shorter than its arista; coxæ and legs yellow; costa not strongly thickened *P. VENATICUS*, nov. sp. (2).

(1) *Platypalpus luctator*, nov. sp. — Male. Length 2 mm. Related to *P. hians*, but having black antennæ, palpi and bristles. Occipal setæ dark, arranged in two sets, two pairs of vertical bristles, ocelli black, front two and a half times as long as broad, face twice as long as broad, its ground-color black, epistome polished; mouth-opening normal, proboscis black, palpi of moderate size, decumbent, black and with one apical black hair; outer antennal joint ovate, one-half longer than broad and three-fourths the length of the shortpubescent arista. Mesonotum with olivaceous pollen, its setulæ short and not restricted to the central rows, four scutellar bristles; sternopleuræ largely polished; abdomen wholly polished, the scattered pubescence pale, genitalia coarse and rounding the end of the abdomen, the right and left claspers enclosing an open space between them. Legs uniformly luteous, the coxæ darkened basally, front femora rather stout, middle femora with twenty-four small black setulæ in each row, posterior to which are eight black pronounced bristles, middle tibiæ three-fourths their femora, the terminal spur minute. Calypteres, fringe and halteres blackish. Veins light piceous, the second, third and fourth sections of the costa proportioned about 4 : 3 : 1, third vein ending at the wing-tip, nearly parallel with the fourth except at the tip where it converges toward the fourth, crossveins at two-fifths the wing-length, meeting, sections of the fifth vein equal, anal vein uniformly weak and located close to the hind margin, cilia short.

Holotype, Priest Lake, Idaho; August 1, 1916 (Melander).

(2) *Platypalpus venaticus*, nov. sp. — Female. Length 1.8 mm. Cinereous dusted, legs yellow and not setose, crossveins meeting. Head slightly higher than wide, the lower part of the eyes bulging forward, occiput cinereous, front narrow, whitish, face and epistome white; palpi white, oval, one-fourth as long as the black proboscis, with two basal and one apical white setæ; antennæ two-jointed, the basal joint brown, the outer joint black, ovate, not twice as long as wide and three-fourths as long as its arista; two pairs of brown vertical bristles. Thoracic bristles yellow, two humeral, one notopleural, one supraalar, one postalar, two dorsocentral and two scutellar bristles, setulæ very sparse; sternopleural spot large; abdomen shining black. Middle femora short, the tibiæ three-fourths as long as their femora, their apical spur minute. Veins thin and pale, costa not thickened, its second, third and fourth sections proportioned 3 : 2.3 : 1, third and fourth veins nearly straight and parallel, the first posterior cell a little the widest at its apex, crossveins before the basal two-fifths of the wing, meeting, the posterior but slightly oblique, more than twice as long as the anterior, sections of the fifth vein proportioned 0.4 : 0.4 : 1, anal crossvein forming an angle of forty-five degrees, anal vein very weak, vanishing at its base, marginal cilia as long as the anterior crossvein.

Type from Pullman, Washington, June 16, 1912. Paratypes from Ilwaco, Washington; Avon and Moscow Mountain, Idaho (Melander) and from Kaslo and South Fork, British Columbia (R. P. Currie).

74. Thoracic bristles black; tarsi piceous beyond the base, middle femora with anterior black bristles and setose beneath on the postero-flexor edge (*P. porrectus*, Melander) 75.
 Thoracic bristles yellow; last three tarsal joints strongly annulate, middle femora without black bristles and biseriately setulose beneath *P. VELOX*, nov. sp. (1).
 75. Abdomen completely shining *P. PORRECTUS*, Melander, s. str.
 Base of the abdominal segments pollinose *P. PORRECTUS*,
 var. *SUFFASCIATUS*, nov. var. (2).
 76. Abdomen pollinose and red; front tibiae swollen and ciliate; front tarsi annulate; thorax white-pollinose *P. VIERECKI*, Melander.
 Abdomen black and rarely with pollen; tibiae not swollen 77.
 77. Proboscis yellow; tarsi yellow; white-pollinose species *P. TENELLUS*, Melander.
 Proboscis black 78.
 78. Mesonotum densely golden pollinose, contrasting with the silvery pleurae; palpi orbicular, not hairy; costa not swollen; tarsi strongly annulate; abdomen with lateral pollinose triangular spots *P. BALLUCATUS*, nov. sp. (3).

(1) *Platypalpus velox*, nov. sp. — Male. Length 2 mm. Black, cinereous, bristles yellow, legs yellow, the last three tarsal joints strongly annulate, tibial spur small, femora not setose or ciliate, third antennal joint elongate, arista short, crossveins meeting. Occiput, front and face cinereous, front rather narrow, its sides diverging above, epistome black; antennae two-jointed, black, the outer joint subulate, over three times as long as wide and nearly twice as long as the arista. One pair each of the usual thoracic bristles, setulae very sparse, the pollinose coating whitish, sternopleurae glabrous except the front and upper edge; pygidium globose and small. Posterior coxae slightly brownish at the base, front femora nearly as thick as the middle ones, beneath with fifteen short pale cilia, middle femora not bristly, beneath biseriately setulose, the setulae of the posterior row, twenty in number, scarcely longer than those of the anterior row, middle tibiae nearly as long as their femora. Veins brown, costa thickened at the end of the first vein, its second, third and fourth sections proportioned 3 : 2 : 1, crossveins nearly transverse, located at three-sevenths the length of the wing, the anterior three-fifths as long as the posterior, third and fourth veins subparallel, the first posterior cell a little the widest at two-thirds its length, ending at the apex of the wing, sections of the fifth vein proportioned 0.4 : 0.6 : 1, anal crossvein thin, at an angle of sixty-five degrees, anal vein faint, marginal cilia short.

One specimen, Kettle Falls, Washington, May 3, 1912.

(2) *Platypalpus porrectus*, var. *suffasciatus*, nov. var. — Differing from *porrectus* Melander in that the sides of the first segment of the abdomen and the sides and bases of the subsequent segments are cinereous pollinose, leaving the lateral pits conspicuously shining.

Boulder, Colorado (Cockerell); Alma, California (Aldrich).

(3) *Platypalpus ballucatus*, nov. sp. — Female. Length 2.5 mm. Mesonotum densely covered with golden pollen, sides of the abdomen pollinose, antennae reddish yellow. Front densely golden pollinose, its sides parallel, face and epistome silvery, palpi yellow, broadly orbicular, pubescent only at the edge, proboscis black; third joint of the antennae ovate, scarcely longer than wide, its arista black; one pair of vertical and one of ocellar bristles yellow, lower occipital hairs dense and whitish. One humeral, one notopleural, one supraalar, two scutellar and two dorsocentral bristles yellow, setulae small and sparse; pollen of the pleurae dense and white, a small rounded sternopleural glabrous space; abdominal segments with lateral triangular pollinose marks which are broad in front and taper obliquely behind, the middle segments with two prominent lateral pits, venter pollinose. Legs including the coxae yellow, the apices of the tarsal joints narrowly blackish, front femora with about thirteen pale cilia in each of two flexor rows, black setulae of middle legs minute, posterior-flexor edge of the middle femora with ten yellow setae, the anterior edge loosely setose, middle tibiae three-fourths as long as their femora, their spur shorter than their diameter, acute, and tipped with black. Veins pale, crossveins at the middle of the wing, the posterior crossvein somewhat oblique, located beyond the anterior crossvein the length of the latter, costa not thickened, its second, third and fourth sections proportioned 3.8 : 2.4 : 1, third vein straight, ending just before the tip of the wing, subparallel with the slightly undulating fourth vein, underside of the second basal cell twice as long as the last section of the fifth vein, anal crossvein at two-fifths the length of the basal cell, attenuated apically, forming an angle of eighty degrees, base of the anal vein wanting, marginal cilia short.

Two specimens, Spokane, Washington and Chicago, Illinois (Melander).

- Mesonotum white- or cinereous-pollinose, not contrasting
with the pleuræ; abdomen not pollinose 79.
79. Crossveins located before the middle of the wing; costa not
swollen (*P. crassifemoris*, Fitch) 80.
- Crossveins at or beyond middle of wing, basal cells elongate;
costa swollen between first and third veins. *P. CELLARIUS*, nov. sp. (1).
80. Base of antennæ reddish-yellow 81.
- Antennæ entirely black. *P. CRASSIFEMORIS*,
var. *MELANOCERUS*, nov. var. (2).
81. Epistome white pruinose; palpi elongate oval and with two
apical setæ var. *CRASSIFEMORIS*, s. str.
- Epistome shining black. 82.
82. Palpi broadly oval, without apical setæ; tarsi yellow, the last
joint black var. *MOLLIS*, nov. var. (3).
- Palpi elongate oval; tarsi annulate var. *DEBILIS*, LOEW.
83. Posterior crossvein transverse, nearly or quite meeting the
anterior, if oblique located before the anterior 84.
- Posterior crossvein oblique, located beyond the anterior and
usually before the middle of the wing 94.
84. Crossveins at or beyond the middle of the wing. 85.
- Crossveins distinctly before the middle of the wing; third and
fourth veins subparallel 89.
85. Third vein straight, ending before the apex of the wing, fourth
vein lightly sinuous, at the end diverging from the third

(1) *Platypalpus cellarius*, nov. sp. — Male. Length 2.1 mm. Occiput and notum olivaceous gray pollinose, abdomen shining black, legs entirely yellowish, hairs and bristles yellow. Antennæ yellow, the third joint ovate, one-half longer than broad, the black arista twice as long as the third joint; face and front narrow, white pollinose as is also the epistome; palpi whitish, proboscis black. Thoracic setulæ long, one humeral, three notopleural, four scutellar bristles; pleuræ whitish pollinose, with a sternopleural glabrous space; pygidium nearly glabrous, its fringes short. Front femora with twelve yellow flexor setæ, front tibiæ as thick as the others, not setose, setulæ of the middle legs minute, a few of the hairs of the front side of the middle femora rather erect, the postero-flexor edge with seven yellow setæ, spur of the middle tibiæ small and tipped with black, not as long as the diameter of the tibiæ, tarsi apically more or less dusky. Veins pale, hind crossvein somewhat oblique, located a little beyond the anterior and also beyond the middle of the wing, the basal cells therefore long, second and third sections of the costa thickened, subequal and two and one-half times as long as the third, third and fourth veins parallel, straight, the third ending before the wing-tip, the underside of the second basal cell two and six-tenths times as long as the last section of the fifth vein, base of the anal vein wanting, cilia of the hind margin three-fifths as long as the posterior crossvein.

Female. Differs in that the third antennal joint is blackish, the thoracic setulæ are smaller, the dorsum is cinereous pollinose, the tarsi are dusky from the tip of the metatarsus, the crossveins are located at the middle of the wing and the marginal cilia measure one-half the length of the posterior crossvein.

One male and one female, Keremeos, British Columbia (Melander), one female from Lusk, Wyoming, the last collected by W. M. Wheeler.

(2) *Platypalpus crassifemoris*, var. *melanocerus*, nov. var. — Differing from the other forms of *crassifemoris* in having the antennæ entirely black. Palpi clothed with pure white pubescence; epistome white pubescent like the face; tarsi annulate.

Pullman, Wash. (Melander).

(3) *Platypalpus crassifemoris*, var. *mollis*, nov. var. — Antennæ red at base; epistome shining black; palpi broadly oval, without apical setæ; tarsi yellow, the last joint black.

Chester County, Pennsylvania (J. C. Bradley); Milwaukee, Wisconsin (C. T. Brues), Avon, Idaho (Melander) and Quilcene, Washington (Melander).

- vein, first posterior cell widest at its apex, costa thickened from the first to the third vein. *P. BALLISTRARIUS*, nov. sp. (1).
- Third vein curved, converging with the fourth at the end, the first posterior cell widest at the middle, costa not greatly thickened. 86.
86. Third and fourth veins greatly bowed, the first posterior cell at its middle occupying much more than one-third of the wing *P. LYRISTES*, nov. sp. (2).
- Third and fourth veins gently but distinctly curved, the first posterior cell at its middle occupying not more than one-third of wing, third vein ending at or beyond tip of wing 87.
87. Anterior femora with broad blackish annulus, hind femora dark apically; epistome shining; tarsi with dark tip; third antennal joint subequal to arista *P. VALGUS*, nov. sp. (3).

(1) *Platypalpus ballistrarius*, nov. sp. — Male. Length 2.5 mm. Mesonotum moderately dusted with olive-gray pollen, its bristles yellow; wings with long basal cells and costa thickened from the first to the third vein. Front and face white pollinose, the sides of the front parallel, epistome shining black; palpi small, brown but white pollinose and with sparse white setae, proboscis black; ocellar bristles small, one pair of yellow vertical bristles, one small humeral, three notopleural, one small postalar, four scutellar, three moderate posterior dorsocentrals, four irregular rows of acrostichals; pleurae white pruinose and with a sternopleural glabrous spot; abdomen shining black. Legs including the coxae testaceous, the tarsi darkened apically especially on the distal part of each joint, front femora with a dozen short yellow flexor setae, middle femora with a few irregular setae in front and a row in back, their tibiae more than two-thirds the length of the femora, the spur strong and black. Second, third and fourth sections of the costa proportioned 2.4 : 2.5 : 1, crossveins located beyond the middle of the wing, the posterior oblique but placed before the anterior, third vein straight, the fourth vein slightly undulating, the first posterior cell a little the widest at its end which occupies the apex of the wing, sections of the fifth vein proportioned 0.8 : 1 : 1, base of the anal vein weak, anal crossvein forming an angle of 60°, marginal cilia as long as the anterior crossvein.

One specimen, Falls Church, Virginia, May 10, received from Nathan Banks.

(2) *Platypalpus lyristes*, nov. sp. — Male. Length 2.5 mm. Mesonotum with rather dense cinereous pollen, the bristles yellow. Face and front white-pruinose, the latter with parallel sides, epistome black; palpi oval, one-half as long as the proboscis, white, and with white hairs. Proboscis black; antennae two-jointed, black, the outer joint elongate lanceolate, nearly four times as long as wide and a little longer than the arista; ocellar bristles small, two pairs of vertical bristles. One humeral bristle, notopleurals small, one supraalar, one postalar, two dorsocentrals, lateral scutellars small, acrostichals biseriate; sternopleural spot moderately large, pentagonal; abdomen including the venter shining black, base of the segments with indications of pollen, hairs short and sparse above, subdorsal pits prominent, upper valves of the pygidium broad, densely fringed on the left side with long golden cilia. Legs including the coxae yellow, tarsi scarcely darker apically, anterior femora loosely ciliate below, middle femora with but about sixteen setae in the posterior flexor row, setulae of middle legs minute, middle tibiae five-sixths as long as the femur, the spur longer than the diameter of the tibia and tipped with black. Veins pale at the base, darker distally, the costa brown beyond the first vein and not swollen, crossveins meeting, both long, subequal and nearly transverse, third and fourth veins mutually bowed, the basal and first posterior cells unusually wide, occupying more than one-third of the wing, sections of the fifth vein proportioned 1 : 2 : 1, marginal cilia short.

One specimen, Bright Angel, in the Colorado Canon, Arizona, elevation 3700 feet, collected by H. S. Barbor for the U. S. National Museum.

(3) *Platypalpus valgus*, nov. sp. — Male. Length 2.6 mm. Black, legs mostly yellow, the anterior femora broadly annulate, the hind femora dark on the outer half, tibial spur strong, mesonotum with golden pubescence, crossveins at the middle of the wing, meeting and transverse. Occiput olivaceous pollinose, lower hairs silky white, two black verticals and one ocellar; front similarly pollinose, face white, epistome bare; palpi small, brownish in ground color, proboscis black; antennae black, the third joint hairy below, slender, two and a half times as long as wide and two-thirds the length of the arista. Lateral thoracic bristles brown, two dorsocentrals, acrostichal and dorsocentral setulae in single rows, pleurae gray pollinose, half of the sternopleurae shining. Abdomen shining, base of the second segment laterally lightly pollinose, hairs rather long and pale, pygidium obliquely ascending, left dorsal valve triangular, pointed, its fringe dense and yellow. Anterior legs

- Femora luteous; arista longer than third antennal joint 88.
88. Epistome pollinose; tarsi annulate; middle section of fifth vein longer than the ultimate; ♀ abdomen with pollinose fasciæ. *P. TENAX*, nov. sp. (1).
- Epistome shining; tarsi gradually darker toward tip; last two sections of fifth vein subequal; abdomen shining *P. RECURVUS*, nov. sp. (2).
89. Bristles black; coxæ dark, middle femora robust 90.
- Bristles yellow; arista slender; legs yellow 91.
90. Third antennal joint much longer than arista; middle femora with five black thorns on anterior face *P. VULNIFICUS*, nov. sp. (3).

robust, front femora ciliate as usual, front tibiæ stouter than the hind ones, middle femora with about eighteen setulæ in each flexor row, the hairs rather outstanding but none distinctly setiform, middle tibiæ five-sixths the length of their femora, tarsi apically dusky. Halteres, calypteres and root of wings yellow, veins thin and brown, wings three times as long as wide, basal cells large, third vein uniformly curved ending beyond the tip of the wing, fourth vein sinuous, first posterior cell widest at its middle where it occupies somewhat more than one-third the width of the wing, sections of the costa proportioned 10 : 6 : 4 : 1, of the fourth vein, 1 : 1, of the fifth vein, 2 : 4 : 3, anal crossvein almost perpendicular, base and tip of the anal vein lacking.

Four specimens, from shrubbery, near Adna, Washington, July 10, 1917 (Melander).

(1) *Platypalpus tenax*, nov. sp. — Male. Length 2.3 mm. Black, legs yellow, mesonotum completely covered with golden pollen, bristles black, crossveins transverse, contiguous, located at the middle of the wing, first posterior cell widest at the middle. Upper occiput with olivaceous pollen and a double row of dark setæ, lower occiput with gray pollen and hairs, front olivaceous pollinose, face and epistome white; proboscis black, palpi rather small, oval and yellow; antennæ black, the third joint hairy, lanceolate, over twice as long as wide and three-fourths the length of the arista. Humeral bristle small, posterior dorsocentral and middle scutellar bristles strong, dorsocentral setulæ distinct. Abdomen shining, the hairs fine, long and pale, pygidium not much larger than the diameter of the abdomen, its left dorsal valve with a close fringe of yellowish hairs. Legs robust, including the coxæ yellow, the tarsi narrowly annulate, front femora with a dozen fine pale flexor cilia, about twenty-four setulæ in each flexor row of the middle femora, posterior to which are about a dozen irregular yellow setæ, middle tibiæ setulose within, five-sixths as long as their femora, the black-tipped acute spur long. Roots of halteres and of wings, and the calypteres yellow, wings three times as long as wide, veins thin and blackish, sections of the costa proportioned about 7 : 5 : 3 : 1, of the fourth vein, 7 : 8, of the fifth vein, 3 : 4 : 3, third vein gently bowed, ending just beyond the wing-tip, fourth vein conversely bowed, the first posterior cell at its middle occupying about one-third the width of the wing, anal crossvein straight, almost perpendicular, anal vein faint, anal angle moderate.

Female. Abdominal segments with faint basal bands of yellow pollen.

One pair, Ilwaco, Washington, July 15, 1917 (Melander).

(2) *Platypalpus recurvus*, nov. sp. — Female. Length 3 mm. Front cinereous, its sides slightly diverging above, face white-pollinose, epistome black, palpi ovate, half as long as the proboscis, yellow, the exterior side white pruinose, a single apical white seta, proboscis black; antennæ three-jointed, black (in one specimen the antennæ are yellowish at the base), the last joint elongate-oval, twice as long as wide, its arista nearly twice as long as this joint; one pair each of black ocellar and vertical bristles. Pollen of the mesonotum rather dense, yellowish, nearly coating the black ground-color, bristles yellow, the humeral small, one notopleural, one supraalar, one postalar, two dorsocentrals, four scutellars; pleuræ more densely white pruinose, with a large sternopleural spot; abdomen shining black, with visible subdorsal pits. Legs including the coxæ testaceous, front femora with twelve flexor cilia, middle femora setose in front and back, middle tibiæ three-fourths as long as their femora, their spur strong, acute, black, tarsi dusky, more pronounced at the apex of the joints. Wings a little dusky, veins strong, costa swollen at the end of the first vein, its second, third and fourth sections proportioned 5 : 3 : 1, third vein uniformly recurved, terminating beyond the tip of the wing, first posterior cell widest at its middle, posterior crossvein oblique, more than three times as long as the anterior, located just before the middle of the wing and half the length of the anterior crossvein beyond that vein, sections of the fifth vein proportioned 0.8 : 1.2 : 1, anal crossvein nearly perpendicular, base of the anal vein indicated only as a slight fold.

Three specimens, Palo Alto, California, April 3, 1906, collected by Dr. J. M. Aldrich. Another female, from Eagle Creek Forest Reserve, near Portland, Oregon (Melander), differs in having the posterior crossvein transverse and meeting the anterior.

(3) *Platypalpus vulnificus*, nov. sp. — Female. Length 3.2 mm. Body black, legs yellow, antennæ elongate, mesonotum pollinose, bristles black, tibial spur strong, middle femora with spinous bristles on the anterior face, crossveins meeting. Front pollinose, rather broad, its sides divergent above, face twice as long as broad, with dark pollen, epistome shining, proboscis black, palpi rather short and stout; antennæ black, the outer joint tapering, four times as long as wide and one-third longer than the arista. Mesonotum with olivaceous pollen, with black setulæ

- Third antennal joint much shorter than the rather stout arista;
middle femora dark, and unarmed on anterior surface . . . *P. PILATUS*, nov. sp. (1).
91. Epistome silvery white pruinose; third antennal joint three-fourths as long as the arista; tarsi strongly annulate; sections of the fifth vein proportioned 0.5 : 0.8 : 1. *P. ÆQUALIS*, Loew.
Epistome shining black; antennæ shorter and arista longer;
tarsi not strongly annulate 92.
92. Palpi yellow; base of the antennæ yellow, the third joint with a straight upper edge 93.
- Palpi blackish inside; antennæ black, the third joint ovate;
last section of the fifth vein subequal to or longer than the preceding *P. SUTOR*, Melander.
93. Basal cells relatively large, sections of the fifth vein proportioned 0.8 : 1.5 : 1, first posterior cell ending beyond the tip of the wing; pollen of the mesonotum golden . . . *P. CREPIDARIUS*, nov. sp. (2).

in four equidistant rows, the usual bristles all present, strong and black, humeral strong; sternopleuræ polished. Sides of the first abdominal segment lightly pollinose, remainder of the abdomen shining except the dull apex, hairs very short, pale and sparse. Posterior coxæ black, legs very robust, front femora with spinous black bristles near the knee, the pair on the front face pronounced, middle femora armed with six black spinous thorns in a flexor row before the setulæ and with about five more slender black outstanding bristles forming a longitudinal row down the middle of the anterior face, twenty-one setulæ in the anterior flexor row and seventeen stout setæ in the posterior row, tibial spur as long as the diameter of the tibiæ, tipped with black, all the tarsi weakly annulate. Calypteres and root of halteres brownish, fringe and knob of halteres yellow. Wings hyaline, two and a half times as long as broad, the anal angle full, veins thin and blackish, sections of the costa proportioned 5 : 3 : 2 : 1, first posterior cell ending at the wing-tip, its veins straight and parallel, crossveins at three-sevenths the wing-length, the posterior before the anterior and nearly transverse, outer sections of fifth vein proportioned 2 : 3, anal crossvein straight, long, forming an angle of forty-five degrees, anal vein uniformly weak.

One specimen of this distinct species from the southern end of Lake McDonald, Glacier National Park, Montana, August 14, 1916 (Melander).

(1) *Platypalpus pilatus*, nov. sp. — Female. Length 2.2 mm. Black, pollinose, bristles black, legs yellowish, posterior coxæ blackish, tibial spur strong, crossveins meeting before the middle of the wing. Head globular, cinereous, front and face short and of moderate breadth, epistome shining black; palpi blackish, spatulate, the anterior surface yellowish pollinose and with a few setæ; antennæ short, three-jointed, the third joint pyriform, one-half longer than wide and two-thirds as long as the rather thick arista; two pairs each of ocellar and vertical bristles. Pollen of the dorsum moderately dense, of a yellowish gray color, two humeral bristles and one pair each of notopleural, supraalar, postalar, dorsocentral and scutellar bristles; pleuræ cinereous pollinose, the sternopleuræ largely glabrous; abdomen shining, the pits prominent. Front femora with yellow flexor cilia, middle femora stout, brown, with a few yellow setæ in front and a series of longer ones behind, middle tibiæ two thirds as long as their femora, tarsi not annulate. Veins firm, first vein slightly thickened on entering the costa, the second, third and fourth sections of the costa proportioned 4.5 : 2.5 : 1, third and fourth veins nearly straight and parallel, crossveins meeting at two-fifths the length of the wing, nearly transverse, the posterior three times as long as the anterior, sections of the fifth vein proportioned 0.4 : 0.6 : 1, marginal cilia short.

One specimen, collected at Friday Harbor, Washington, July 4, 1905, by Dr. J. M. Aldrich.

(2) *Platypalpus crepidarius*, nov. var. — Female. Length 2 mm. Black, dorsum moderately covered with yellow-gray pollen, legs and bristles black. Occiput densely cinereous pollinose, one pair each of ocellar and vertical bristles; front cinereous, its sides parallel, face white pruinose, epistome shining black; palpi oval, yellow, with white apical setæ, proboscis black; antennæ three-jointed, the basal joints yellow, the third joint conical, about one-third as long as the thickened arista. Humeral bristle small, one pair each of notopleural, supraalar, small postalar, dorsocentral and scutellar bristles; pollen of the pleuræ denser and white, the glabrous spot occupying one-half of the sternopleuræ; abdomen shining black. Legs including the coxæ yellow, tarsi a little dusky towards the apex, front femora ciliate beneath, middle femora ciliate in front and setose behind, tibial spur strong. Veins yellowish, costa not swollen, its second, third and fourth sections proportioned 5 : 3 : 1, third vein ending at the tip of the wing, crossveins almost meeting, the posterior but little oblique, sections of the fifth vein proportioned 0.8 : 1.5 : 1, anal crossvein forming an angle of fifty-five degrees, anal vein uniformly faint, marginal cilia shorter than the anterior crossvein.

One specimen, Woodland, Washington, May 23, 1910 (Melander).

- Basal cells small, sections of the fifth vein proportioned 0.4 : 0.4 : 1, first posterior cell ending at the tip of the wing; pollen of the mesonotum cinereous *P. SOCCATUS*, nov. sp. (1).
94. Pleuræ entirely densely white-pollinose; tarsi yellow 95.
Sternopleura with a glabrous shining spot; front rather narrow, its sides nearly parallel 99.
95. Third antennal joint ovate, two-thirds as long as the arista; bristles of the thorax yellow 96.
Antennæ black, the third joint oval, one-third as long as the arista; bristles black *P. CALIGATUS*, Melander.
96. Base of abdominal segments fasciate with cinereous pollen; third vein nearly straight *P. PULVERULENTUS*, nov. sp. (2).
Abdomen completely shining, or sides of segments with basal pollinose triangles. 97.
97. Abdomen shining yellow; epistome black; third and fourth veins straight and parallel; slender species less than 2 mm. in length. 98.
Abdomen shining black, with lateral pollinose triangles; epistome white pruinose; base of antennæ yellow; first posterior cell narrowed; robust species measuring 3 to 4 mm. *P. HOLOSERICUS*, Melander.
98. Antennæ black; femoral setulæ black *P. RUFIVENTRIS*, Melander.

(1) *Platypalpus, soccatus*, nov. var. — Male. Length 1.4 mm. Black, cinereous pollinose, legs entirely yellow, tibial spur equal in length to the diameter of the tibiae, base of the antennæ yellow, crossveins meeting, basal cells small. Head cinereous, its bristles yellow, front rather broad, its sides diverging, together with the face white pruinose; epistome and proboscis black, palpi broadly spatulate, pale yellow, fringed but not setose. Thoracic bristles yellow, one pair each of the usual bristles, but the scutellum with a small additional lateral pair; sternopleuræ glabrous except the upper fourth; abdomen shining black, pygidium large, rotund, shining, not fimbriate. Front femora with short flexor cilia, middle femora with twenty setulæ in the anterior flexor row and twelve black setæ in the posterior row, behind which are some short yellow setæ, middle tibiae nearly as long as their femora. Veins yellowish, costa but slightly thickened beyond the first vein, its second, third and fourth sections proportioned 3.5 : 3 : 1, third and fourth veins straight, parallel, crossveins meeting at the basal third of the wing, nearly transverse, sections of the fifth vein proportioned 0.4 : 0.4 : 1, anal crossvein at an angle of eighty degrees, anal vein entire, distinct, but very thin, marginal cilia as long as the anterior crossvein.

Female. Last two segments of the abdomen dull gray.

Type, Moscow Mountain, Idaho, July 6, 1912 (Melander). Paratype from same locality, July 4, 1915; and two others from Craig's Mountain, Idaho, June 9, 1918 (Melander).

(2) *Platypalpus pulverulentus*, nov. var. — Length 2.3 mm. Black, thorax cinereous pollinose including the entire pleuræ, abdomen with pollinose fasciæ, legs entirely yellow, tibial spur strong, costa not thickened, crossveins separated, the posterior oblique. Front narrow, cinereous, face white pollinose over a yellowish ground, epistome white over a black ground color, palpi broadly oval, yellow, bare except for two apical white setæ, proboscis short, black; antennæ short, two-jointed, black the base rufous, last joint elongate ovate, twice as long as wide and nearly as long as the arista; one ocellar and two pairs of vertical bristles black. Bristles of the mesonotum blackish, including one humeral, several notopleural, one supraalar, one postalar, two dorsocentral, and four scutellar, acrostichals biseriate, but minute, other setulæ very sparse; pollen of the pleuræ whiter; the pollen of the abdomen including the sides and the bases of the second and following segments. Legs including the coxæ yellow, the posterior coxæ pollinose laterally, lower posterior side of the middle femora with a row of yellow setæ, middle tibiae two-thirds as long as their femora. Second, third and fourth sections of the costa proportioned 3 : 1.5 : 1, third vein straight, fourth vein undulate, parallel with the third at its very tip, first posterior cell widest at its middle, distance between the crossveins equal to the anterior, which is one-half as long as the posterior, sections of the fifth vein proportioned 0.7 : 0.9 : 1, anal crossvein gradually attenuated, forming an angle of fifty degrees, anal vein uniformly weak, marginal cilia short.

Two specimens, San Diego County, California, March, 8, 1897, collected by W. M. Wheeler.

- Antennæ yellow at base; femoral setulæ yellow; front unusually long. *P. OCULEUS*, nov. sp. (1).
99. Thoracic bristles black; tarsi not annulate 100.
 Thoracic bristles yellow; tarsi usually more or less annulate. 102.
100. Third antennal joint lanceolate, twice as long as wide and shorter than the arista; middle tibiæ two-thirds as long as the femora, the middle femora without yellow setæ in front. *P. TALARIS*, nov. sp. (2).
 Third antennal joint slender, over three times as long as wide, longer than its arista; tarsi piceous beyond the base, middle tibiæ three-fourths as long as their femora 101.
101. Abdominal segments with pollinose fasciæ; base of the anal vein indicated, but weak *P. INCURVUS*, Melander.
 Abdomen uniformly black; base of the anal vein wanting, veins very coarse *P. GRAVIDUS*, Melander.
102. Crossveins at middle of wing; tarsi yellow and not or scarcely annulate; costa more or less thickened from first to third veins, base of anal vein wanting; mesonotum with golden pollen; third antennal joint about one-third the arista. 103.
 Crossveins before middle of wing; tarsi usually more or less annulate; costa not thickened 104.

(1) *Platypalpus oculeus*, nov. sp. — Length 1.7 mm. Black, densely cinereous pollinose, even the sternopleuræ covered except for a minute central spot, abdomen shining, testaceous, legs and antennæ yellow, tibial spur equal to the diameter of the tibia. Head obliquely drawn out below, the antennæ inserted well down so that the face is only one-half as long as the front, epistome not pruinose; palpi yellow, proboscis brown; vertex with white setæ. Thoracic bristles yellow, no humeral, three small notopleurals, one supraalar, one postalar, seven dorsocentrals, four scutellars the lateral ones small. Front femora biserially ciliate beneath, middle femora not thicker than the front ones, their usual two rows of flexor setulæ yellow, posteriorly with six yellow setæ, middle tibiæ three-fourths as long as their femora. Veins pale yellow, costa not thickened, third and fourth veins straight, nearly parallel, the first posterior cell widest at apex, second, third and fourth sections of the costa proportioned 2.4 : 2.4 : 1, posterior crossvein before the middle of the wing, nearly transverse, separated from the anterior by the length of the latter, sections of the fifth vein proportioned 0.5 : 0.8 : 1, anal crossvein perpendicular, base of the very weak anal vein entirely wanting, marginal cilia shorter than the anterior crossvein.

One specimen, Philadelphia, Pennsylvania (Brues). The pollinose pleuræ, reddish abdomen, pronounced dorsocentrals, yellow femoral setulæ and slanting head make a combination of characters readily distinguishing this species.

(2) *Platypalpus talaris*, nov. sp. — Length 2.5 mm. Black; front cinerous, rather broad, widening above, face narrow and white, epistome black; palpi oval, yellow, not hairy and with a single apical seta; proboscis black; antennæ three-jointed, the last joint elongate ovate, apparently twice as long as wide and about one-half as long as the arista; one pair of black vertical bristles. Thorax moderately covered with olivaceous-yellow pollen, bristles black, humeral small, one notopleural, one supraalar, one postalar, one dorsocentral, two scutellar, acrostichal setulæ biserial, sparse; pollen of the pleuræ yellowish, sternopleural spot large; abdomen shining black, pygidium very small. Legs including the coxæ testaceous, tarsi very slightly dusky towards the tip, not annulate, front femora with thirteen yellow flexor cilia, middle femora with yellow setæ in back, middle tibiæ two-thirds as long as their femora, their spur large. Veins blackish, first vein thickened on entering the costa, the second, third and fourth costal sections proportioned 4 : 2.3 : 1, third vein straight, fourth vein slightly undulating, crossveins slightly before the middle of the wing, nearly meeting, the posterior somewhat oblique, sections of the fifth vein proportioned 0.5 : 1 : 1, anal crossvein perpendicular, anal vein faint, marginal cilia short.

Type ♂ from Mount Constitution, Orcas Island, Washington, July 31, 1908. Additional specimens from Bellingham, Lynden (Melander) and Friday Harbor (Aldrich), Washington; Milwaukee, Wisconsin (Wheeler); Waubesa, Ontario (H. S. Parish), and Montreal, Quebec (Beaulieu).

103. Abdomen strongly fasciate with bands of pollen; first posterior cell widest at middle, its veins recurved . . . *P. FASCIVENTRIS*, nov. sp. (1).
 Abdomen shining; third and fourth vein parallel . . . *P. POSTPOSITUS*, nov. sp. (2).
104. Third antennal joint short-ovate, one-third to one-half as long as its arista; crossveins separated by more than the length of the anterior crossvein, base of the anal vein present but weak; epistome pruinose; front tibiæ with bristles on extensor side. 105.
 Third antennal joint long-ovate, more than half the length of arista; crossveins separated by less than the length of the anterior crossvein, base of the anal vein wanting; front tibiæ with weak or no extensor bristles 106.
105. Antennæ black; tarsi strongly annulate and not dilated; front tibiæ with evident black extensor setæ, middle femora with yellow setæ in front *P. TRIVIALIS*, Loew.
 Antennæ red with black tip; middle tarsi ♂ black, the metatarsi dilated into a flat disk, tarsi ♀ weakly annulate, the middle pair blackish; extensor bristles of front tibiæ ♂ yellow, of ♀ black; middle femora without yellow setæ in front; palpi yellow *P. DISCIFER*, Loew.

(1) *Platypalpus fasolventris*, nov. sp. — Male. Length 3 mm. Body black, legs yellow, notum closely golden pollinose, bristles yellow, abdomen with pollinose fasciæ, lower third of sternopleuræ polished, tibial spur large, tarsi weakly annulate, front tibiæ without bristles, posterior crossvein oblique and located at the middle of the wing. Occipital hairs abundant and white, vertical bristles short and yellow, front nearly four times as long as broad, closely gray pollinose, its sides little diverging, face gray, epistome bare, proboscis black, palpi yellow, with conspicuous white hairs; antennæ black, the outer joint pyriform, twice as long as deep and less than one-half as long as the rather strong arista. Four yellow setæ grouped around the supra-alar bristle, humeral small, two small lateral scutellars in addition to the central pair, setulæ in four irregular rows, pollen of pleuræ gray. Abdominal fasciæ of gray pollen occupying the basal half of each segment and expanding laterally, seventh tergite entirely pollinose, ventral segments shining, abdominal hairs pale and scattering, pygidium not globose, small, the dorsal valves projecting backward, the left dorsal valve with a close fringe of downward-directed, nearly straight, yellow hairs. Coxæ yellow, front femora of nearly same diameter as the middle pair, weakly ciliate beneath, middle femora with about eighteen setulæ in each flexor row, those behind scarcely longer, the row flanked by a few weak outstanding yellow setæ, middle tibiæ three-fourths the length of the femur, the spur longer than the diameter of the tibiæ and tipped with black, extreme tips of the tarsal joints slightly browned. Calypteres, fringe and halteres yellow. Wings hyaline, anal angle well developed so that the anal vein lies midway between the fifth vein and the margin, third vein gently recurved to end at the wing-tip, first posterior cell widest at the middle, fourth vein sinuous, sections of the fifth vein 2 : 3 : 2, distance between the crossveins nearly equal to the anterior crossvein, anal crossvein almost perpendicular, its outer half abruptly faint, anal vein vanishing basally.

Holotype, Klickitat River near Glenwood, Washington, June 27, 1917 (Melander).

(2) *Platypalpus postpositus*, nov. sp. — Male. Length 1.8 mm. Mesonotum almost completely covered with golden pollen, the black ground color hardly showing through, legs yellow, the tarsi a little dusky apically, tibial spur long and slender, posterior crossvein beyond the middle of the wing, oblique, costa thickened between the first and third veins. Front cinereous, rather narrow, face white-pollinose, epistome shining black; palpi white and with white bristles, proboscis black; antennæ black, two-jointed, the last joint apparently short-ovate, the arista three times as long as this joint; one pair each of vertical and ocellar bristles yellow, hairs of lower occiput moderate and white. Thoracic bristles yellow, one humeral, two notopleural, one supraalar, one dorsocentral, one pair of long and one of short scutellar bristles, two definite rows of acrostichal setulæ; pleuræ silky white, a small oval sternopleural space glistening; abdomen subshining, its hairs white, long but rather sparse, fringes of the pygidium small. Coxæ pale yellow, flexor hairs of the anterior femora longer, the middle femora with a posterior row of about fourteen yellow setæ in addition to the two rows of minute setulæ, spur of the middle tibiæ a little longer than the diameter of the tibia, acute and tipped with black. Veins yellow at the base, darker apically, crossveins separated by the length of the anterior crossvein, third and fourth veins parallel, sections of the fifth vein proportioned 0.8 : 1 : 1, base of anal vein wanting, marginal cilia equal in length of the anterior crossvein.

One specimen, Almota, Washington, June 24, 1911 (Melander). This species resembles *cellaris* but has black antennæ, a longer tibial spur, and less setulose thorax.

106. Antennæ and palpi yellow; tarsi entirely yellow; abdomen with interrupted pollinose fasciæ; first posterior cell greatly narrowed at tip *P. HARPIGER*, Melander.
 Antennæ and palpi black; tarsi more or less annulate; abdomen not pollinose 107.
107. Middle femora without yellow setæ in front, coxæ and legs yellow, tarsi weakly annulate; cilia of hind margin of the wing ♂ nearly as long as the posterior crossvein; arista longer than third antennal joint *P. HASTATUS*, Melander.
 Middle femora with conspicuous yellow setæ in front; cilia of the hind margin of the wing short; palpi blackish inside 108.
108. Epistome shining; tarsi weakly annulate; third vein straight; middle section of fifth vein shorter than the last section 109.
 Epistome heavily pruinose; tarsi strongly annulate 110.
109. Body black; middle femora with at most a spot of brown *P. SUTOR*, Melander.
 Body castaneous; all the femora annulate with brown or black *P. ARCTICUS*, nov. sp. (1).
110. Posterior coxæ dark at base; femora, especially the middle pair, with dark spot or ring; arista obviously longer than third antennal joint, middle section of fifth vein longer than the others *P. ARMILLATUS*, nov. sp. (2).
 Coxæ and femora yellow; arista subequal to third joint; last two sections of fifth vein subequal *P. ÆQUALIS*, Loew.

(1) *Platypalpus arcticus*, nov. sp. — Female. Length 2 mm. Blackish brown, thorax dusted, sternopleuræ partly shining, bristles yellow, legs yellow, the femora broadly ringed with brown, tibial spur long, third antennal joint elongate oval, posterior crossvein oblique and located beyond the anterior. Occiput and front with yellow pollen, face whitish, nearly as broad as the front, the latter with nearly parallel sides, epistome shining; proboscis black, nearly as long as the head height, palpi blackish within, coated outside with yellowish; antennæ rather short, black, the third joint ovate, one-half longer than broad, the arista twice as long as the antenna. Mesonotum shining through the yellowish coating, bristles yellow, pleuræ whitish tomentose, the sternopleura largely shining, the coating thinner in the center of the mesopleura. Abdomen shining, the last two segments small and opaque yellow, styles brown. Base of the posterior coxæ brown, the dark band of the middle femora strongest, that of the hind femora placed beyond the middle, front and middle femora distinctly biserially setose beneath, the setæ of the front femora fine, front tibiæ short-ciliate outwardly, slightly thicker than the middle pair, middle tibiæ three-fourths as long as the femora, the apical spur longer than the diameter of the tibia, slender and acute, tarsi weakly annulate, almost dusky toward the tip. Halteres yellow, calypteres with pale fringe. Wings with a yellowish tinge, veins light brown, anal crossvein forming an angle of sixty degrees, sections of the fifth vein proportioned 1 : 1 : 1.3, third and fourth veins nearly parallel, marginal cilia short.

Four cotype specimens, received from the U. S. National Museum; Fort Chimo, Ungava Bay, Labrador; L. M. Turner, collector.

(2) *Platypalpus armillatus*, nov. sp. Length 2.6 mm. Black; front and face of equal width, with parallel sides, front cinereous, face and epistome white pruinose; palpi elongate oval, black inside, white pruinose outside and with two apical setæ, proboscis black; antennæ black, apparently two-jointed, the last joint elongate oval, slightly more than twice as long as wide and three-fourths as long as the arista, cephalic bristles yellow, one pair each of vertical and ocellar bristles. Mesonotum moderately densely covered with cinereous pollen, its bristles yellow, the humeral bristle small, several notopleurals, one supraalar, one postalar, two dorsocentral and four scutellar bristles, acrostichals biserial and weak; pollen of pleuræ whitish, anterior half of the sternopleuræ glabrous; abdomen shining black, pygidium moderately large, the dorsal valve with a yellow fringe. Base of the posterior coxæ black, remainder of the legs testaceous, the tarsi rather strongly annulate, posterior femora with a more or less developed blackish ring at the outer two-thirds, in the ♀ much less distinct, sometimes wanting, front femora with long cilia beneath, middle femora with some setæ in back, middle tibiæ two-thirds as long as their femora, the spur strong. Veins coarse and black, first vein thickened on entering the costa, costal sections two to four proportioned 6 : 2.3 : 1, third and fourth veins slightly incurved, posterior crossvein oblique, twice as long as the anterior, the space between the crossveins equal to the anterior crossvein, sections of the fifth vein proportioned 0.8 : 1.3 : 1, anal crossvein at an angle of 80 degrees, anal vein very weak, vanishing at both ends, marginal cilia equal in length to the anterior crossvein.

Seventeen specimens, type from Almota, Washington, elevation 600 feet. Paratypes from Pullman, Clarkston, Kettle Falls, Oroville and Omak, Washington; Kendrick, Idaho (Melander) and Bozeman, Montana (R. A. Cooley).

Geographical distribution.

1. *P. æneicollis*, Zetterstedt, Dipt. Scand. Vol. 8, p. 3008 [1849] (*Tachydromia*); C. & N. Europe.
Strobl, Progr. Seitenstetten, Vol. 14, p. 7 (1880); Wahlgren, Ent. Tidskr. Vol. 31, p. 94 [1910] (*Tachydromia*).
2. *P. æneus*, Macquart, Mém. Soc. Sc. Lille, p. 153 [1823] (*Tachydromia*); W. Europe.
Dipt. N. France, Vol. 3, p. 95 (1827); Hist. Nat. Dipt. Vol. 1, p. 352 (1834); Meigen, Syst. Besch. Vol. 7, p. 97 [1838] (*Tachydromia*).
3. *P. æqualis*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 88: Cent. 5, No. 75 (1864); North America.
Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 438 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 222 (1902).
4. *P. agilis*, Meigen, Syst. Besch. Vol. 3, p. 80 [1822] (*Tachydromia*); Europe.
Zetterstedt, Dipt. Scand. Vol. 1, p. 275 (1842); ibidem, Vol. 8, p. 3004 [1849] (*Tachydromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 123 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 91 (1862); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 121 [1893] (*Tachydromia*); Ver. Naturw. Hermannst. Vol. 46, p. 24 [1897] (*Tachydromia*); Mem. Soc. Esp. Hist. Nat. Vol. 3, p. 314 [1906] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 411 [1907] (*Tachydromia*); Medd. Soc. Sc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 311 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 94 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 80 [1913] (*Tachydromia*).
var. *hybridus*, Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 411 [1907] (*Tachydromia*). Finland.
5. *P. ? albens*, Pallas, in Wiedemann, Zool. Mag. Vol. 1 (2), p. 26 [1818] (*Empis*). Tauria.
6. *P. albicornis*, Zetterstedt, Dipt. Scand. Vol. 1, p. 279 [1842] (*Tachydromia*); Europe.
Walker, Ins. Brit. Dipt. Vol. 1, p. 124 (1851); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 112 (1893) (*Tachydromia*); ibidem, Vol. 46, p. 81 [1909] (*Tachydromia*); Wien. Ent. Zeit. Vol. 18, p. 79 [1899] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 308 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 92 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 76 [1913] (*Tachydromia*).
7. *P. albifrons*, Macquart, Mém. Soc. Sc. Lille, 1823, p. 154 [1823] (*Tachydromia*). France.
8. *P. albipennis*, Perris, Ann. Soc. Linn. Lyon. Vol. 5, p. 200 [1852] (*Tachydromia*). France.
9. *P. albiseta*, Panzer, Fauna Ins. Germ. Vol. 103, pl. 17 [1806] (*Tachydromia*); Europe, N. Africa, East Indies.
Meigen, Syst. Besch. Vol. 3, p. 73 [1822] (*Tachydromia*); ibidem, Vol. 6, p. 342 [1830] (*Tachydromia*); Macquart, Hist. Nat. Dipt. Vol. 1, p. 352 (1834); Loew, Progr. Posen, p. 22 [1840] (*Tachydromia*); Isis, Vol. 7, p. 551 [1840] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 310 [1842] (*Tachydromia*); Boitard, Man. Vol. 3, p. 322 (1843); Neuhaus, Dipt. March. p. 75 (1886); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 109 [1893] (*Tachydromia*); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 152 [1899] (*Tachydromia*); Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 114 [1907] (*Tachydromia*); Frey, ibidem, Vol. 7, p. 413 [1907] (*Tachydromia*); Medd. Soc. Sc. Fenn. Helsingfors, Vol. 34 p. 21 [1908] (*Tachydromia*); Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 180 [1909] (*Tachydromia*); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 79 [1909] (*Tachydromia*); Lundbeck, Dipt. Danica Vol. 3, p. 321 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 95 [1910] (*Tachydromia*); Bezzi, Ann.

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- albocapillatus*, Fallen, Dipt. Suec. Emp. p. 9, pt. [1815] (*Tachydromia*); Zetterstedt, ibidem, Vol. 1, p. 309, pt. (1842); ibidem, Vol. 8, p. 3010, pt. [1849] (*Tachydromia*).
- castanipis*, Meigen, Syst. Besch. Vol. 3, p. 79 [1822] (*Tachydromia*); Walker, List, Vol. 3, p. 508 (1849)? Ins. Brit. Dipt. Vol. 1, p. 131 (1851); Schiner, Fauna Austr. Vol. 1, p. 90 (1862).
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- vividus*, Meigen, Syst. Besch. Vol. 7, p. 97 [1838] (*Tachydromia*).
- var. *brunnipes*, Strobl, Mem. Soc. Hist. Nat. Esp. Vol. 3, p. 312 [1906] (*Tachydromia*); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 79 [1909] (*Tachydromia*). Spain.
10. *P. albocapillatus*, Fallen, Dipt. Suec. Empid. p. 9, part [1815] (*Tachydromia*); Meigen, Syst. Besch. Vol. 3, p. 79 [1822] (*Tachydromia*); Loew, Progr. Posen, p. 22 [1840] (*Tachydromia*); Isis, Vol. 7, p. 551 [1840] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 309, part [1842] (*Tachydromia*); Walker, List Dipt. Vol. 3, p. 508 (1849); Zetterstedt, Dipt. Scand. Vol. 8, p. 3010, part [1849] (*Tachydromia*); Scholz, Ent. Zeitschr. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Bonsdorff, Finl. tvâv. Ins. Dipt. Vol. 1, p. 152 [1861] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 90 (1862); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 109 [1893] (*Tachydromia*)? Wien. Ent. Zeit. Vol. 12, p. 38 [1893] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 413 [1907] (*Tachydromia*); Medd. Soc. Sc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Strobl, Mitteil. Naturw. Steiermark, Graz, Vol. 46, p. 79 [1909] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 322 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 94 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 87 [1913] (*Tachydromia*). Europe.
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11. *P. albomicans*, Oldenberg, Ent. Mitteil. Deutsche Ent. Mus. Vol. 1, p. 214 [1912] (*Coryneta*). Alps.
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13. *P. algirus*, Macquart, Explor. Algér. Zool. Vol. 3, p. 445, pl. 3, f. 5 (1849); Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 119, note [1907] (*Tachydromia*). Algeria.
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15. *P. alumnus*, nov. sp. Wyoming.
16. *P. analis*, Meigen, Syst. Besch. Vol. 6, p. 343 [1830] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 91 (1862). C. Europe.
- luteus*, Zetterstedt, Dipt. Scand. Vol. 1, p. 294, part [1842] (*Tachydromia*).
17. *P. andalusiacus*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 82 [1899] (*Tachydromia*). Spain.
18. *P. annularis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 404 [1909] (*Tachydromia*). Peru.

19. *P. annulatus*, Fallen, Empid. 7, part [1815] (*Tachydromia*); Zetterstedt, Ins. Lappon. p. 552, part [1838] (*Tachydromia*); Dipt. Scand. Vol. 1, p. 301 [1842] (*Tachydromia*); Walker, List Dipt. Vol. 3, p. 508 (1849); Zetterstedt, Dipt. Scand. Vol. 8, p. 3009 [1849] (*Tachydromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 131 (1851). C. & N. Europe.
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27. *P. argenteiceps*, Meijere, Tijd. Ent. Vol. 56, Suppl. p. 77 [1914] (*Tachydromia*). Java.
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29. *P. articulatoides*, Frey, Act. Soc. Sc. Fenn. Helsingfors, Vol. 46, p. 2, 11 N. Russia.
[1918] (*Tachydromia*).
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Nat. Dipt. Vol. 1, p. 354 (1834); Meigen, Syst. Besch. Vol. 8, p. 98 [1838] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 284 [1842] (*Tachydromia*); Boitard, Man. Ent. Vol. 3, p. 324 (1843); Walker, List Dipt. Vol. 3, p. 510 (1849); Scholz, Breslau Ent. Zeitschr. Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 125 (1851); Zetterstedt, Dipt. Scand. Vol. 13, p. 4988 [1859] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 91 (1862); Strobl, Progr. Seitenstetten, Vol. 14, p. 8 (1880); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 113 [1893] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 408 [1907] (*Tachydromia*); Medd. Soc. Sc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 300 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 92 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 77 (1913); Edwards, Ent. Mag. Vol. 50, p. 59 figs. [1914] (*Tachydromia*).
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31. *P. ater*, Wahlberg, Ofvers. Akad. Foerhandl. p. 106 [1844] (*Tachydromia*); Europe.
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 Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 120 [1892] (*Tachy-*
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32. *P. baldensis*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 81 [1899] (*Tachydromia*). S. Europe.
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34. *P. ballucatus*, nov. sp. Washington, Illinois.
35. *P. Beckeri*, Mik, Wien. Ent. Zeit. Vol. 13, p. 166 [1894] (*Tachydromia*). C. Europe, Alps.
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dromia).
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 Mém. Soc. Sc. Lille, p. 152 [1823] (*Tachydromia*); Ins. Dipt. N.
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 (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 276 [1842]
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 List Dipt. Vol. 3, p. 509 (1849); Ins. Brit. Dipt. Vol. 1, p. 127 (1851).
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pallidiventris, Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 148 [1861] (*Tachy-*
dromia).
37. *P. bicornis*, nov. sp. Washington.
38. *P. bivittatus*, Macquart, Dipt. N. France, Vol. 3, p. 97 (1827); Hist. Nat.
 Ins. Vol. 1, p. 354 (1834); Meigen, Syst. Beschr. Vol. 7, p. 97
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39. *P. brevicornis*, Zetterstedt, Dipt. Scand. Vol. 1, p. 293 [1842] (*Tachy-*
dromia); Wahlgren, Ent. Tidskr. Vol. 31, p. 94 [1910] (*Tachydromia*); N. Europe.

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- major*, Bonsdorff (not Zetterstedt), Finl. tvåv. Ins. Dipt. Vol. 1, p. 149 [1861] (*Tachydromia*).
- ventralis*, Meigen, Syst. Besch. Vol. 3, p. 85 [1822] (*Tachydromia*); Walker, Dipt. Brit. Mus. Vol. 3, p. 509 (1849); Schiner, Fauna Austr. Dipt. Vol. 1, p. 88 (1862).
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51. *P. cellarius*, nov. sp. W. North America.
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55. *P. cinereovittatus*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 78 [1899] (*Tachydromia*). Spain.
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[1840] (*Tachydromia*); Schiner, Fauna Austr. Vol. 1, p. 91 (1862).
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(*Coryneta*).

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72. *P. cryptospina*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 8 [1908] (*Tachydromia*); ibidem, Vol. 37 (3), p. 79 [1913] (*Tachydromia*). Finland.
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 var. *denominatus*, Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 409 [1907] (*Tachydromia*). Finland.
 var. *hispanicus*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 79 [1899] (*Tachydromia*). Spain.
 var. *minor*, Strobl, ibidem. Vol. 18, p. 79 [1899] (*Tachydromia*). Spain.
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77. *P. decolor*, nov. sp. Montana.
78. *P. desertorum*, Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 117 [1907] (*Tachydromia*). Algeria.
79. *P. difficilis*, Frey, ibidem, Vol. 7, p. 410 [1907] (*Tachydromia*); Acta Soc. Sc. Fenn. Helsingfors. Vol. 37 (3), p. 79, f. 21 [1913] (*Tachydromia*). Finland.
80. *P. dilatovittatus*, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 77 [1909] (*Tachydromia*). C. Europe.
81. *P. direptor*, nov. sp. British Columbia.
82. *P. discifer*, Loew, Berl. Ent. Zeitschr. Vol. 7, p. 20 : Cent. 3, No. 36 (1863); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 438 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 222, 342 (1902). E. United States.
83. *P. dissimilipes*, nov. sp. W. North America.
84. *P. diversipes*, Coquillett, Proc. Wash. Acad. Sc. Vol. 2, p. 422 (1900); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 218 (1902). Alaska.
85. *P. divinus*, Walker, Ins. Brit. Dipt. Vol. 1, p. 127 (1851). England.
86. *P. dubius*, ibidem, Vol. 1, p. 132 (1851). Britain.
87. *P. enervatus*, nov. sp. California.
88. *P. engadinicus*, Mik, Wien. Ent. Zeit. Vol. 15, p. 106 [1896] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 77 [1909] (*Tachydromia*). C. Europe.
testaceus, Becker (not Philippi), Berl. Ent. Zeitschr. Vol. 31, p. 135 [1887]

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89. *P. eumerus*, Bezzi, Nova Acta Akad. Naturf. Halle Vol. 91, p. 404 Peru.
[1909] (*Tachydromia*).
90. *P. *eversoris*, Meunier, Ann. Sc. Nat. Zool. Vol. 7, p. 90, 102, pl. 6, f. 2 Baltic Amber.
(1908).
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92. *P. exiguus*, Meigen, Syst. Besch. Vol. 3, p. 81 [1822] (*Tachydromia*); N. & C. Europe.
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- var. *nigrofemoratus*, Strobl (not 1906), Mitteil. Naturw. Ver. Steiermark, Graz, C. Europe.
Vol. 46, p. 83 [1909] (*Tachydromia*).
93. *P. exilis*, Meigen, Syst. Besch. Vol. 3, p. 90 [1822] (*Tachydromia*); Scholz, C. Europe.
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[1909] (*Tachydromia*).
94. *P. fagorum*, Dahl, Fauna Chorin, p. 466 (1912). Germany.
95. *P. fasciatus*, Meigen, Syst. Besch. Vol. 3, p. 86, pl. 23, f. 22 [1822] Europe, N. Africa.
(*Tachydromia*); Walker, List Vol. 3, p. 509 (1849); Ins. Brit. Dipt. Vol. 1, p. 126, pl. 5, f. 2 (1851); Kawall, Stett. Ent. Zeit. Vol. 16, p. 229 [1855] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 89 (1862); Glover, Manuscr. notes, 54, pl. 11, f. 8 [1874] (*Tachydromia*); Strobl, Mitteil. Ver. Steiermark, Graz, Vol. 29, p. 115 [1892] (*Tachydromia*); Jahrb. Mus. Kärnten, Vol. 47, p. 204 (1901); Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 118 [1907] (*Tachydromia*); Frey, ibidem, Vol. 7, p. 409 [1907] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 305, f. 139 [1910] (*Tachydromia*).
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96. *P. fascipes*, Meigen, Syst. Besch. Vol. 3, p. 78 [1822] (*Tachydromia*); Europe.
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- notatus*, Meigen, Syst. Besch. Vol. 3, p. 78 [1822] (*Tachydromia*); Loew,

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- var. *obscurior*, Strobl, Glasnik Mus. Bosn. Herceg. Vol. 14, p. 469 [1902] (*Tachydromia*); Mitteil. Bosn. Herzeg. Vol. 9, p. 528 [1904] (*Tachydromia*). S. Europe.
- var. *pallidicoxa*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 80 [1913] (*Tachydromia*). Finland.
- strigifrons*, Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 410 [1907] (*Tachydromia*).
97. *P. fasciventris*, nov. sp. Washington.
98. *P. ferrugineus*, Brunetti, Rec. Ind. Mus. Vol. 9, p. 40 (1913); Fauna Brit. Ind. Dipt. Vol. 1, p. 376 [1920] (*Tachydromia*). India.
99. *P. flammifer*, Melander, Occ. Pap. Bost. Soc. Nat. Hist. Vol. 5, p. 84 E. United States.
100. *P. ? flavescens*, Rossi, Fauna Etrusca, Mantissa, Vol. 2, p. 77 [1794] (*Empis*); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 152 [1899] (*? Tachydromia*). S. Europe.
101. *P. flavicornis*, Macquart (not Meigen), Mem. Soc. Sc. Lille, p. 152 [1823] (*Tachydromia*). France.
102. *P. flavicornis*, Meigen, Syst. Besch. Vol. 3, p. 83 [1822] (*Tachydromia*); Macquart, Dipt. N. France, Vol. 3, p. 99 (1827); Hist. Nat. Dipt. Vol. 1, p. 355 (1834); Zetterstedt, Dipt. Scand. Vol. 1, p. 278 [1842] (*Tachydromia*); Boitard, Man. Ent. Vol. 3, p. 324 (1843); Walker, List. Vol. 3, p. 509 (1849); Zetterstedt, Dipt. Scand. Vol. 8, p. 3005 [1849] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 57 [1851] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 13, p. 4987 [1859] (*Tachydromia*); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 149 [1861] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 88 (1862); Strobl, Jahrb. Land. Mus. Kärnt. Vol. 47, p. 203 (1901); Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 117 [1907] (*Tachydromia*); Frey, ibidem, Vol. 7, p. 408 [1907] (*Tachydromia*); Med. Soc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Lundbeck, Dipt. Dan. Vol. 3, p. 307 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 92 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 76 [1913] (*Tachydromia*).
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103. *P. flavicoxis*, Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 116 [1907] (*Tachydromia*). Algeria.
104. *P. flavipennis*, Walker, Ins. Brit. Dipt. Vol. 1, p. 130 (1851). England.
105. *P. flavipes*, Fabricius, Ent. Syst. Vol. 4, p. 406 [1794] (*Empis*); Meigen, Klassif. Vol. 1, p. 233 [1804] (*Empis*); Fabricius, Syst. Antl. p. 142 [1805] (*Tachydromia*); Fallen, Empid. p. 6, part [1815] (*Tachydromia*); Billberg, Enumeratio, p. 119 [1820] (*Sicus*); Meigen, Syst. Besch. Vol. 3, p. 81 [1822] (*Tachydromia*); Macquart, Mém. Soc. Lille, 1823, p. 152 [1823] (*Tachydromia*); Ins. N. France, Vol. 3, p. 97 (1827); Hist. Nat. Dipt. Vol. 1, p. 354, pl. 8, f. 10 (1834); Zetterstedt, Ins. Lappon. p. 549 [1838] (*Tachydromia*); Loew, Progr. Posen, p. 22 (1840); Isis, Vol. 7, p. 551 [1840] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 273 [1842] (*Tachydromia*); Boitard,

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Europe.

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var. *gracilis*, Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 57 [1851] (*Tachydromia*).

C. Europe.

var. *melanochetus*, Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 158 [1899] (*Tachydromia*).

S. Europe.

var. *pseudofulvipes*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31, p. 9 (1908); Vol. 37 (3), p. 79 [1913] (*Tachydromia*).

Finland.

106. *P. flavipes*, Scopoli, Ent. Carniolica, p. 366 [1763] (*Asilus*); Thunberg, Nova Acta Upsalensis, Vol. 4, p. 26, var. part [1784] (*Empis*); Olivier, Encyclop. Method. Vol. 6, p. 390 [1791] (*Empis*); Schiner, Verh. Zool-bot. Ges. Wien. Vol. 6, p. 421 [1856] (*Tachydromia*).

C. Europe.

107. *P. flavirostris*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 90 : Cent. 5, No. 80 (1864); Coquillett, Proc. U. S. Mus. Vol. 18, p. 438 (1895); Proc. Wash. Acad. Sc. Vol. 2, p. 422 (1900); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 219, 342 (1902).

New Hampshire.

var. *dilutior*, nov. var.

Washington.

var. *microcerus*, nov. var.

Idaho.

var. *vittiger*, nov. var.

Alaska, Montana.

108. *P. flavus*, Macquart, Mém. Soc. Sc. Lille, p. 153 [1823] (*Tachydromia*).

France.

109. *P. formalis*, Walker, Ins. Brit. Dipt. Vol. 1, p. 130 (1851).

England.

110. *P. fulcratus*, Scopoli, Ent. Carniolica, p. 366 [1763] (*Asilus*); Olivier, Encycl. Meth. Vol. 6, p. 390 [1791] (*Empis*); Schiner, Verh. Zool-bot. Ver. Wien. Vol. 6, p. 421 [1856] (*Tachydromia*).

C. Europe.

111. *P. fuscicornis*, Zetterstedt, Dipt. Scand. Vol. 1, p. 291 [1842] (*Tachydromia*); ibidem, Vol. 8, p. 3006 [1849] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 6 (19), p. 58 [1851] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 90 (1862); Strobl, Wien. Ent. Zeit. Vol. 18, p. 78 [1899] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 316 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr.

N. & C. Europe.

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pallipes, Meigen (not Fallen), Syst. Besch. Vol. 3, p. 74 [1822] (*Tachydromia*).
112. *P. fuscitarsis*, Zetterstedt, Dipt. Scand. Vol. 13, p. 4990 [1859] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 95 [1910] (*Tachydromia*). N. Europe.
113. *P. geniculatus*, Meigen (not Fallen), Syst. Bes. Vol. 3, p. 75 [1822] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 311, note [1842] (*Tachydromia*). C. Europe.
114. *P. gentilis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 40 [1913]; Fauna Brit. India Dipt. Vol. 1, p. 377 [1920] (*Tachydromia*). Himalayas.
115. *P. gesticulator*, nov. sp. Montana.
116. *P. gilvipes*, Meigen, Syst. Besch. Vol. 3, p. 87 [1822] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau. Vol. 5 (19), p. 59 [1851] (*Tachydromia*); Loew, Zeitschr. Ges. Naturw. Vol. 8, p. 101 [1857] (*Tachydromia*). C. Europe.
flavipes, Meigen (not Fabricius), Klassif. Besch. Eur. Zweif. Ins. Vol. 1, p. 238 [1804] (*Tachydromia*).
117. *P. glaber*, Meigen, Syst. Besch. Vol. 3, p. 89 [1822] (*Tachydromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 129 (1851). C. Europe.
118. *P. glabratus*, Meigen, Syst. Besch. Vol. 7, p. 99 [1838] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 92 (1862). C. Europe.
119. *P. glacialis*, nov. sp. Montana, Washington.
120. *P. gravidus*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 221, pl. 5, f. 25; pl. 6, f. 42 (1902). California.
121. *P. harpiger*, Melander, Occ. Pap. Bost. Soc. Nat. Hist. Vol. 5, p. 84 (1924). Massachusetts.
122. *P. hastatus*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 222, f. 30 (1902). United States.
123. *P. hians*, Melander, ibidem, Vol. 28, p. 220, f. 32, 36, 37 (1902); Ent. News, Vol. 17, p. 372 [1906] (*Symballophthalmus*). North America.
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124. *P. holosericus*, Melander, ibidem, Vol. 5, p. 85 (1924). E. North America.
125. *P. immaculatus*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 45 [1902] (*Tachydromia*). Egypt.
126. *P. impexus*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 219 (1902). United States.
127. *P. incurvus*, Melander, ibidem, Vol. 28, p. 221, f. 31, 33, 44 (1902). California.
128. *P. inferialis*, nov. sp. W. United States.
129. *P. infuscatus*, Meigen, Syst. Besch. Vol. 3, p. 84 [1822] (*Tachydromia*); Macquart, Dipt. N. France, Vol. 3, p. 99 (1827); Hist. Nat. Dipt. Vol. 1, p. 355 (1834); Boitard, Man. Ent. Vol. 3, p. 324 (1843); Walker, Ins. Brit. Dipt. Vol. 1, p. 126 (1851); Schiner, Fauna Austr. Dipt. Vol. 1, p. 88 (1862); Neuhaus, Dipt. Marchica, p. 74 (1886); Leunis, Synop. Vol. 2, p. 401 (1886); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 115 [1892] (*Tachydromia*). C. Europe.
130. *P. inops*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 220 (1902); Ent. News, Vol. 17, p. 372 [1906] (*Symballophthalmus*). United States.
var. *aquicornis*, nov. var. Montana.
131. *P. *intersectoris*, Meunier, Ann. Sc. Nat. Zool. Vol. 7, p. 89, 102, pl. 5, f. 12, pl. 6, f. 1 (1908). Baltic Amber.
132. *P. interjectus*, Lundbeck, Dipt. Danica, Vol. 3, p. 295 [1910] (*Tachydromia*). Denmark.
133. *P. juvenis*, nov. sp. W. North America.
var. *puerinus*, nov. var. North America.
var. *hyanoides*, nov. var. Washington.

134. *P. lacertosus*, nov. sp. Idaho.
135. *P. lacteisetæ*, Collin, Ent. M. Mag. London, 699, p. 188 [1922] (*Tachydromia*). Seychelles.
136. *P. læstadianorum*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 83, f. 27 [1913] (*Tachydromia*); Ent. Tidskr. 1914, p. 80 (1914). Finland, Sweden.
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137. *P. lætabilis*, nov. sp. New York.
138. *P. lætus*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 91 : Cent. 5, No. 81, (1864); Coquillett, Proc. U. S. Mus. Vol. 18, p. 438 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 219, 341 (1902). New Hampshire.
139. *P. lateralis*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 89 : Cent. 5, No. 78 (1864); Coquillett, Proc. U. S. Mus. Vol. 18, p. 438 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 222 (1902). E. United States.
140. *P. latericia*, Becker, Ann. Soc. Ent. France, Vol. 83, p. 124 [1914] (*Coryneta*). E. Africa.
141. *P. laticinctus*, Walker, Ins. Brit. Dipt. Vol. 1, p. 127 (1851). England.
142. *P. lesinensis*, Strobl, Wien. Ent. Zeit. Vol. 12, p. 38 [1893] (*Tachydromia*). S. Europe.
143. *P. leucocephalus*, Roser, Correspondenzbl. Landw. Württemb. Vol. 1, p. 54 [1840] (*Tachydromia*). C. Europe.
144. *P. leucochætus*, Becker, Berl. Ent. Zeitschr. Vol. 33, p. 345 [1889] (*Tachydromia*); ? Strobl, Wien. Ent. Zeit. Vol. 12, p. 38 [1893] (*Tachydromia*); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 152 [1899] (*Tachydromia*). C. & S. Europe.
145. *P. leucothrix*, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 81 [1909] (*Tachydromia*). C. Europe.
146. *P. lineatus*, Meigen, Klassif. Vol. 1, p. 238, pl. 12, f. 5 [1804] (*Tachydromia*); Syst. Besch. Vol. 3, p. 88 [1822] (*Tachydromia*). C. Europe.
147. *P. longicornis*, Meigen, ibidem, Vol. 3, p. 73, pl. 23, f. 17 [1822] (*Tachydromia*); Walker, List, Vol. 3, p. 507 (1849); Ins. Brit. Dipt. Vol. 1, p. 133 (1851); Neuhaus, Dipt. March. p. 75 (1886); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 413 (1907); Medd. Soc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 320, f. 141 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 95 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 87 [1913] (*Tachydromia*). Europe.
pubicornis, Zetterstedt, Ins. Lappon. p. 553 [1838] (*Tachydromia*); Dipt. Scand. Vol. 1, p. 304 [1842] (*Tachydromia*); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 151 [1861] (*Tachydromia*); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 137 [1887] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 34, p. 210 [1898] (*Tachydromia*); Wien. Ent. Zeitschr. Vol. 18, p. 78 [1899] (*Tachydromia*); Jahrb. Kärnten. Vol. 47, p. 203 (1901); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 79 (1909).
148. *P. longimanus*, Strobl, ibidem, Vol. 46, p. 79 (1909). C. Europe.
149. *P. longirostris*, Bezzi, Ann. Mus. Hungar. Vol. 10, p. 491 [1912] (*Coryneta*). Formosa.
var. *xanthopus*, Bezzi, Suppl. Ent. Berlin, Vol. 3, p. 78 [1914] (*Coryneta*). Formosa.
150. *P. luctator*, nov. sp. Idaho.
151. *P. lupatus*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 340 (1902). New Mexico.
152. *P. luteicornis*, Meigen, Syst. Besch. Vol. 7, p. 97 [1838] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 91 (1862). C. Europe.
153. *P. luteipalpis*, Macquart, Hist. Nat. Dipt. Vol. 1, p. 579, Errata (1834). France.
flavipalpus, Macquart (not Meigen), Dipt. N. France, Vol. 3, p. 96 (1827); Hist. Nat. Vol. 1, p. 353 (1834); Boitard, Man. Ent. Vol. 3, p. 322 (1843).
fuscipennis, Macquart, Hist. Nat. Dipt. Vol. 2, p. 659 (1835).

154. *P. luteus*, Meigen, Klassif. Vol. 1, p. 238 [1804] (*Tachydromia*); Fallen, Empid. p. 10 [1815] (*Tachydromia*); Meigen, Syst. Besch. Vol. 3, p. 89 [1822] (*Tachydromia*); Macquart, Dipt. N. France, Vol. 3, p. 100 (1827); Hist. Nat. Dipt. Vol. 1, p. 356 (1834); Zetterstedt, Fauna Ins. Lappon. p. 552 [1838] (*Tachydromia*); Dipt. Scand. Vol. 1, p. 294 part [1842] (*Tachydromia*); Walker, List, Vol. 3, p. 510 (1849); Zetterstedt, Dipt. Scand. Vol. 8, p. 3007 [1849] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 129 (1851); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 150 [1861] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 91 (1862); Neuhaus, Dipt. March. p. 75 (1885); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 108 [1892] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 411 (1907); Medd. Soc. Sc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 8 [1908] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 312 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 94, f. 19 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 81 [1913] (*Tachydromia*).
glaber, Zetterstedt (not Meigen), Dipt. Scand. Vol. 1, p. 295 [1842] (*Tachydromia*); ibidem, Vol. 8, p. 3007 [1849] (*Tachydromia*).
pallidus, Meigen, Syst. Besch. Vol. 3, p. 90 [1822] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5, p. 59 [1851] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 91 (1862).
155. *P. lyristes*, nov. sp. Arizona.
156. *P. macropalpus*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 80 [1899] (*Tachydromia*). Spain.
157. *P. maculifemoratus*, nov. sp. (1). Java.
158. *P. maculifemur*, Meijere, Tijdschr. v. Ent. Vol. 56, Suppl. p. 78 [1914] (*Tachydromia*). Java.
159. *P. maculipes*, Meigen, Syst. Besch. Vol. 3, p. 79 [1822] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 1, p. 274 [1842] (*Tachydromia*); Walker, List, Vol. 3, p. 508 (1849); Ins. Brit. Dipt. Vol. 1, p. 122 [1851] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 12, p. 4600 [1855] (*Tachydromia*); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 148 [1861] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 87 (1862); Neuhaus, Dipt. March. p. 74 (1886); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 117 [1892] (*Tachydromia*); Mem. Soc. Esp. Vol. 3, p. 313 [1906] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 409 [1907] (*Tachydromia*); Medd. Soc. Sc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Strobl, Verh.

(1) *Platypalpus maculifemoratus*, nov. sp. — Length 2 mm. Black, thorax dusted, legs including the coxæ yellow, tarsi not annulate, middle femora marked with a black spot at the outer two-thirds of the anterior face, tibial spur sharp and yellow, crossveins touching. Head rather densely golden pollinose, front short and broad, face much widened below and silvery pruinose, palpi small and yellow, proboscis two-thirds as long as the head, reddish in front, otherwise black, antennæ black, the third joint defective in the type specimens, vertical bristles strong and black. Thorax moderately covered with yellowish pollen, slightly shining, its bristles black, pleuræ whitish pruinose, sterno- and hypopleuræ largely polished. Abdomen shining; the pygidium moderately small, globular, closed, not hairy; styles of the ovipositor slender, yellowish. Front tibiae as thick as the others, with three extensor black setæ, middle femora moderately thickened, the pale flexor setæ long on both sides, patella yellow, middle tibiae two-thirds as long as their femora, the spur as long as the diameter of the tibia, tarsi becoming dark apically. Halteres yellow. Wings hyaline, veins pale brown, third vein slightly converging toward the fourth near the tip, crossveins forming a continuous line, located at two-fifths the length of the wing, second, third and fourth sections of the costa proportioned 1 : 0.7 : 0.2, sections of the fifth vein, 0.3 : 0.6 : 1, fringe of the hind margin as long as the anterior crossvein.

Two specimens, Tjibodas, Java, belonging to the U. S. National Museum.

Zool.-bot. Ges. Wien, Vol. 59, p. 180 [1909] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 291, f. 133 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 93 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 79 [1913] (*Tachydromia*).

nigroselosus, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 117 [1892] (*Tachydromia*); Vol. 34, p. 211 [1898] (*Tachydromia*); Vol. 46, p. 83 [1909] (*Tachydromia*).

160. *P. maculus*, Zetterstedt, Dipt. Scand. Vol. 1, p. 289 [1842] (*Tachydromia*); C. & N. Europe.
Wahlberg, Ofvers. K. Vet. Akad. Förhandl. Vol. 2, p. 254 [1845] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 8, p. 3006 [1849] (*Tachydromia*); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 134 [1887] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 80 [1909] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 315 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 95 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 83, f. 25 [1913] (*Tachydromia*); Collin, Ent. M. Mag. (2), Vol. 24, p. 130 [1913] (*Tachydromia*).

flavipalpis, Zetterstedt (not Meigen), Ins. Lappon. p. 551, var. [1838] (*Tachydromia*).

161. *P. major*, Zetterstedt, Dipt. Scand. Vol. 1, p. 287 [1842] (*Tachydromia*); Vol. 7, p. 3006 [1849] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 88 (1862); Jaroschewski, Trudy Khark. Vol. 11, p. 352 (1877); Beling, Verh. Zool.-bot. Ges. Wien, Vol. 38, p. 2 (1888); Strobl, Verh. Mitteil. Siebenbürg. Ver. Hermannst. Vol. 46, p. 23 [1896] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 408 [1907] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 81 [1909] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 306, f. 140 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 93 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 77 [1913] (*Tachydromia*). C. & N. Europe.

cursitans, Meigen (not Fabricius), Klassif. Vol. 1, p. 237 [1804] (*Tachydromia*); Syst. Besch. Vol. 3, p. 83, pl. 23, f. 23 [1822] (*Tachydromia*).

162. *P. Meigenianus*, Gimmerthal, Bull. Soc. Imp. Nat. Moscou, Vol. 7, p. 117 [1834] (*Tachydromia Meigenia*); Vol. 15, p. 667 [1842] (*Tachydromia Meigenia*); Bezzi, Katal. pal. Dipt. Vol. 2, p. 285 (1903) correction. Russia.

163. *P. melanogaster*, nov. sp. Labrador.

164. *P. melleus*, nov. sp. New York.

165. *P. mesogrammus*, Loew, Berl. Ent. Zeitschr. Vol. 7, p. 21 (1863): Cent. 3, No. 38; Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 438 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 219 (1902). E. United States.

166. *P. Mikii*, Becker, Wien. Ent. Zeit. Vol. 9, p. 67 [1890] (*Tachydromia*); C. Europe.
Strobl, Verh. Mitteil. Siebenbürg. Hermannst. Vol. 46, p. 23 [1896] (*Tachydromia*).

167. *P. mimus*, nov. sp. New York.

168. *P. minutissima*, Strobl, Wien. Ent. Zeitschr. Vol. 18, p. 82 [1899] (*Tachydromia*); Mém. Soc. Esp. Hist. Nat. Vol. 3, p. 317 [1906] (*Tachydromia*). Spain.

169. *P. minutus*, Meigen, Klassif. Vol. 1, p. 238 [1804] (*Tachydromia*); Syst. Besch. Vol. 3, p. 76 [1822] (*Tachydromia*); Macquart, Dipt. N. France, Vol. 3, p. 95 (1827); Hist. Nat. Vol. 1, p. 353 [1834]; Zetterstedt, Dipt. Scand. Vol. 1, p. 303 [1842] (*Tachydromia*); Europe.

- Boitard, Man. Ent. Vol. 3, p. 322 (1843); Walker, List, Vol. 3, p. 508 (1849); Zetterstedt, Dipt. Scand. Vol. 8, p. 3009 [1849] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 131 (1851); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 151 [1861] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 89 (1862); Siebke, Nyt Mag. Naturvid. Vol. 14, p. 379 (1866); Strobl, Progr. Seitenstetten, Vol. 14, p. 7 (1880); Neuhaus, Dipt. March. p. 75 (1886); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 134 [1887] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 118 [1892] (*Tachydromia*); Wien. Ent. Zeit. Vol. 18, p. 82 [1899] (*Tachydromia*); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 83 [1909] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 309 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 94 [1910] (*Tachydromia*); Frey, Acta Sc. Fenn. Helsingfors, Vol. 37 (3), p. 80 [1913] (*Tachydromia*).
- annulatus*, Fallen, Dipt. Suec. Empid. 7. part [1815] (*Tachydromia*); Meigen, Syst. Besch. Vol. 3, p. 77 [1822] (*Tachydromia*); Macquart, Dipt. N. France, Vol. 3, p. 96 (1827); Hist. Nat. Vol. 1, p. 353 [1834]; Zetterstedt, Ins. Lappon. p. 552, part [1838] (*Tachydromia*); Loew, Progr. Posen, p. 22 (1840); Isis, Vol. 7, p. 551 [1840] (*Tachydromia*); Boitard, Man. Ent. Vol. 3, p. 322 (1843); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 151 [1861] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 411 [1907] (*Tachydromia*); Medd. Soc. Sc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 80 [1913] (*Tachydromia*).
- femoralis*, Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 150 [1861] (*Tachydromia*).
- var. *obscuripes*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 82 [1899] (*Tachydromia*); Verh. Ges. Wien, Vol. 59, p. 181 [1909] (*Tachydromia*). Spain.
170. *P. montanus*, Becker, Berl. Ent. Zeitschr. Vol. 31, p. 138 [1887] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 119 [1892] (*Tachydromia*); Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 158 [1899] (*Tachydromia*); Strobl, Wien. Ent. Zeit. Vol. 18, p. 82 [1899] (*Tachydromia*); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 84 [1909] (*Tachydromia*). Europe.
171. *P. monticola*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 217, f. 41 (1902). Colorado.
172. *P. multisetosus*, Bezzi, Bull. Soc. Ent. Ital. Vol. 30, p. 155 [1899] (*Tachydromia*). Italy.
173. *P. mundus*, Walker, Ent. Mag. Vol. 4, p. 228 (1837); Ins. Brit. Dipt. Vol. 1, p. 129 (1851). England.
174. *P. nepalensis*, Brunetti, Fauna Brit. Indian Dipt. Brachyc. Vol. 1, p. 377 [1920] (*Tachydromia*). India.
- longicornis*, Brunetti (not Meigen), Rec. India Mus. Vol. 9, p. 22 [1913] (*Brevios*).
175. *P. niger*, Macquart, Mém. Soc. Sc. Lille, p. 154 [1823] (*Tachydromia*); Boitard, Man. Ent. Vol. 3, p. 322 (1843). France.
176. *P. niger*, Meigen, Klassif. Vol. 1, p. 238 [1804] (*Tachydromia*); Syst. Besch. Vol. 3, p. 75 [1822] (*Tachydromia*); Macquart, Dipt. Nord France, Vol. 3, p. 94 (1827); Hist. Nat. Vol. 1, p. 352 (1834); Loew, Progr. Posen, p. 22 (1840); Isis, Vol. 7, p. 551 [1840] (*Tachydromia*); Walker, List, Vol. 3, p. 508 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Neuhaus, Dipt. March. p. 75 (1886). C. Europe.
177. *P. nigricoxus*, Mik, Wien. Ent. Zeit. Vol. 3, p. 82 [1884] (*Tachydromia*); Becker, Fauna Hernstein, Vol. 2, p. 60, f. 7. 8 [1885] (*Tachydromia*); C. Europe.

- Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 83 [1909] (*Tachydromia*).
178. *P. nigrifemoratus*, Macquart, Hist. Nat. Vol. 1, p. 354 (1834); Boitard, S. Europe.
Man. Ent. Vol. 3, p. 324 (1843); Bezzi, Bull. Soc. Ent. Ital. Vol. 24,
p. 116 (1892).
179. *P. nigrimanus*, Roser, Correspondenzbl. Landw. Württemb. Vol. 1, p. 54 C. Europe.
[1840] (*Tachydromia*).
180. *P. nigrimanus*, Strobl, Progr. Seitenstetten, Vol. 14, p. 8 (1880); Mik, S. & C. Europe.
Verh. Ges. Wien. Vol. 31, p. 348 [1881] (*Tachydromia*); Strobl,
Glasnik Zem. Mus. Bosn. Herceg. Vol. 10, p. 401 [1898] (*Tachydromia*);
Mitteil. Mus. Bosn. Herceg. Vol. 7, p. 563 [1900] (*Tachydromia*);
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Steiermark, Graz, Vol. 46, p. 83 [1909] (*Tachydromia*).
181. *P. nigrinus*, Meigen, Syst. Besch. Vol. 3, p. 76 [1822] (*Tachydromia*); C. & N. Europe.
Walker, List, Vol. 3, p. 508 (1849); Becker, Berl. Ent. Zeitschr.
Vol. 31, p. 138, var. [1887] (*Tachydromia*); Strobl, Mitteil. Naturw.
Ver. Steiermark, Graz, Vol. 46, p. 83 [1909] (*Tachydromia*).
182. *P. nigrinus*, Schiner, Fauna Austr. Dipt. Vol. 1, p. 89 (1862); Strobl, C. Europe.
Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 83 [1909] (*Tachydromia*).
183. *P. nigripalpis*, Bigot, Ann. Soc. Ent. France (6), Vol. 1, p. 365 (1881). Alps.
184. *P. nigripes*, Meigen, Syst. Besch. Vol. 6, p. 343 [1830] (*Tachydromia*). C. Europe.
185. *P. nigratarsis*, Fallen, Empid. p. 34 [1816] (*Tachydromia*); Meigen, Europe.
Syst. Besch. Vol. 3, p. 74 [1822] (*Tachydromia*); Zetterstedt, Fauna
Ins. Lappon. p. 553 [1838] (*Tachydromia*); Dipt. Scand. Vol. 1,
p. 307 [1842] (*Tachydromia*); Walker, List, Vol. 3, p. 507 (1849);
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Zeitschr. Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*);
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Vol. 34, p. 21 [1908] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver.
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Tidskr. Vol. 31, p. 95 [1910] (*Tachydromia*); Frey, Acta Soc. Sc.
Fenn. Helsingfors, Vol. 37 (3), p. 87 [1913] (*Tachydromia*).
186. *P. nigromaculatus*, Roser, Correspondenzbl. Landw. Württemb. Vol. 1, C. Europe.
p. 54 [1840] (*Tachydromia*).
187. *P. nitidipleura*, nov. sp. Montana.
188. *P. nitidus*, Macquart, Dipt. N. France, Vol. 3, p. 95 (1827); Hist. Nat. France.
Vol. 1, p. 352 (1834); Meigen, Syst. Besch. Vol. 7, p. 97 [1838]
(*Tachydromia*).
189. *P. niveiseta*, Zetterstedt, Dipt. Scand. Vol. 1, p. 311 [1842] (*Tachydromia*); N. Europe.
Wahlgren, Ent. Tidskr. Vol. 31, p. 95 [1910] (*Tachydromia*).
190. *P. Novakii*, Strobl, Wien. Ent. Zeit. Vol. 12, p. 37 [1893] (*Tachydromia*). S. Europe.
— *P. ochraceus*, Becker, in Bezzi, Atti Soc. Veneto-Trent. (2), Vol. 1, p. 57
[1893] (*Tachydromia*), no description.
191. *P. ochricollis*, nov. sp. Washington.
192. *P. oculus*, nov. sp. Pennsylvania.

193. *P. ædicnemus*, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 34, p. 211 [1898] (*Tachydromia*); Jarb. Mus. Kärnten, Vol. 47, p. 204 (1901).
flaviventris, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 34, p. 211 [1898] (*Tachydromia*).
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194. *P. oriens*, nov. sp. (1). Java.
195. *P. orientalis*, Brunetti, Rec. Indian Mus. Vol. 9, p. 39 (1913); Fauna Brit. India Dipt. Vol. 1, p. 378 (1920). India.
196. *P. ostiorum*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 44 [1902] (*Tachydromia*); Zeitschr. Hym. Dipt. Vol. 7, p. 115 [1907] (*Tachydromia osteriorum*). N. Africa.
197. *P. pachynemus*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 89 : Cent. 5, No. 77 (1864); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 438 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 217 (1902). E. United States.
198. *P. pallidiventris*, Meigen, Syst. Besch. Vol. 3, p. 82 [1822] (*Tachydromia*); Macquart, Dipt. N. France, Vol. 3, p. 98 (1827); Hist. Nat. Dipt. Vol. 1, p. 355 (1834); Zetterstedt, Ins. Lappon. p. 549 [1838] (*Tachydromia*); Dipt. Scand. Vol. 1, p. 277 [1842] (*Tachydromia*); Walker, Ins. Dipt. Vol. 1, p. 123 (1851); Zetterstedt, Dipt. Scand. Vol. 13, p. 4987 [1859] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 88 (1862); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 138, part [1887] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 113 [1892] (*Tachydromia*); Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 117 [1907] (*Tachydromia*); Frey, ibidem, Vol. 7, p. 408 [1907] (*Tachydromia*); Medd. Soc. Sc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 81, 83 [1909] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 301, f. 136 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 93 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 77 [1913] (*Tachydromia*).
flavipes, Fallen, Empid. p. 6, part [1815] (*Tachydromia*).
longiseta, Zetterstedt, Dipt. Scand. Vol. 1, p. 278 [1842] (*Tachydromia*); ibidem, Vol. 13, p. 4987 [1859] (*Tachydromia*); Strobl, Jahrb. Kärnten, Vol. 47, p. 204 (1901); Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 83 [1909] (*Tachydromia*).
199. *P. pallipes*, Fallen, Empid. p. 8 [1815] (*Tachydromia*); Zetterstedt, Fauna Ins. Lappon. p. 553 [1838] (*Tachydromia*); Dipt. Scand. Vol. 1, p. 305 [1842] (*Tachydromia*); Walker, List, Vol. 3, p. 507 (1849); Zetterstedt, Dipt. Scand. Vol. 8, p. 3009 [1849] (*Tachydromia*); Schiner, Fauna Austr. Dipt. Vol. 1, p. 90 (1862); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 412 [1907] (*Tachydromia*); Medd. Soc. Fenn. Europe.

(1) *Platypalpus oriens*, nov. sp. — Length 2.6 mm. Very close to *albiseta* Panz. Body black, mesonotum polished except narrowly along the sides; pleuræ uniformly pollinose except largely on the sternopleuræ. Palpi yellow, base of the proboscis reddish. Antennæ elongate, the white arista longer than the antennæ. Pygidium globular, more rotund than in *albiseta* but terminating in a sharp claw, the dorsal valve hairy and with a blunt backward prolongation. Legs yellow, the front femora with nearly uniform outstanding yellow hairs, front tibiae without basal thickening. Wings nearly hyaline, venation as in *albiseta*.

Several specimens, Tjibodas, Mt. Gede, 4,500 to 9,000 feet altitude, Java, from the Bryant and Palmer collection in the U. S. National Museum. The entirely pruinose mesopleuræ, lack of prominent central bristles of the front femora, the yellow palpi and blunt process of the dorsal valve are distinguishing characters, which differ from those of *albiseta*. In that species the dorsal valve is not hairy and is projected backward as a long acuminate process. *P. subulifer* Meijere is also closely related but has the arista equal to the antenna, the base of the front tibia swollen, spindle-like, the proboscis black and the legs brown.

Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 318 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 95 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 83, f. 24 [1913] (*Tachydromia*).

flavipalpis, Meigen, Syst. Besch. Vol. 3, p. 74 [1822] (*Tachydromia*); Macquart, Hist. Nat. Vol. 1, p. 352 (1834); Zetterstedt, Ins. Lapon. p. 551, part [1838] (*Tachydromia*); Dipt. Scand. Vol. 1, p. 288 [1842] (*Tachydromia*); ibidem, Vol. 8, p. 3006 [1849] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Zetterstedt, Dipt. Scand. Vol. 13, p. 4990 [1859] (*Tachydromia*); Bonsdorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 150 [1861] (*Tachydromia*); Schiner, Fauna Austr. Vol. 1, p. 90 (1862); Strobl, Mitteil. Bosn. Herceg. Vol. 7, p. 563 [1900] (*Tachydromia*); Dahl, Fauna Chorin, p. 466 (1912); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 81 [1909] (*Tachydromia*).

200. *P. paludosus*, Perris, Ann. Soc. Linn. Lyon, Vol. 5, p. 200 [1852] (*Tachydromia*). France.
201. *P. parvicornis*, Zetterstedt, Dipt. Scand. Vol. 13, p. 4992 [1859] (*Tachydromia*). N. Europe.
202. *P. Paulseni*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 768 (1865); Bezzi, Ann. Mus. Hungar. Vol. 3, p. 459 [1905] (*Tachydromia*); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 402 [1909] (*Tachydromia*). Chile.
203. *P. pectinator*, Melander, Occ. Pap. Boston Soc. Nat. Hist. Vol. 5, p. 85 (1924). North America.
204. *P. pectoralis*, Fallen, Empid. Vol. 9 [1815] (*Tachydromia*); Meigen, Syst. Besch. Vol. 3, p. 87 [1822] (*Tachydromia*); Macquart, Hist. Nat. Vol. 1, p. 356 (1834); Zetterstedt, Dipt. Scand. Vol. 1, p. 295 [1842] (*Tachydromia*); Walker, List, Vol. 3, p. 510 (1849); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 129 (1851); Loew, Zeitschr. Ges. Naturwiss. Vol. 10, p. 101 (1857); Schiner, Fauna Dipt. Austr. Vol. 1, p. 91 (1862); Verrall, Ent. Vol. 23, p. 153 [1890] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 108 [1892] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 411 [1907] (*Tachydromia*); Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 8 [1908] (*Tachydromia*); Medd. Soc. Sc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 77 [1909] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 314 [1910] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 94 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 81 [1913] (*Tachydromia*). C. & N. Europe.
- var. *nonstriatus*, Strobl, Jahrb. Mus. Kärnten, Vol. 47, p. 203 (1901). C. Europe.
- var. *stramineipes*, Zetterstedt, Dipt. Scand. Vol. 1, p. 296 [1842] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Walker, Ins. Brit. Dipt. Vol. 1, p. 130 [1851] (*stramineipes*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 7, 8 [1908] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 94 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 81 [1913] (*Tachydromia*). C. & N. Europe.
205. *P. pedestris*, Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 118 [1907] (*Tachydromia*). Algeria.
206. *P. picipes*, Zetterstedt, Dipt. Scand. Vol. 1, p. 298 [1842] (*Tachydromia*). N. Europe.
207. *P. pictipennis*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 402, f. 19 [1909] (*Tachydromia*). Peru, Costa Rica.
208. *P. pictitarsis*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 2, p. 44 [1902] (*Tachydromia*). Egypt.
209. *P. pilatus*, nov. sp. Washington.

210. *P. pluto*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 217, f. 39 [1902]; Pacific United States.
Bezzi, Ann. Mus. Hungar. Vol. 3, p. 456, 459 [1905] (*Tachydromia*);
Nova Acta Akad. Naturf. Halle, Vol. 91, p. 402 [1909] (*Tachydromia*).
211. *P. podocarpi*, Becker, Ann. Soc. Ent. France, Vol. 88, p. 123 [1914] E. Africa.
(*Coryneta*).
212. *P. politus*, nov. sp. California.
var. *nitens*, nov. var. United States.
213. *P. pollinosus*, Strobl, Glasnik. Zem. Mus. Bosn. Herceg. Vol. 10, p. 400 S. Europe.
[1898] (*Tachydromia*); Mitteil. Mus. Bosn. Herceg. Vol. 7, p. 562
[1900] (*Tachydromia*).
f. *pallidus*, Strobl (not Meigen), Wien. Ent. Zeit. Vol. 12, p. 38 [1893] (*Tachydromia*).
214. *P. Poppiusi*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (10), p. 11 Finland.
[1913] (*Tachydromia*).
215. *P. porrectus*, Melander, Occ. Pap. Bost. Soc. Nat. Hist. Vol. 5, p. 86 (1924). W. United States.
var. *suffusciatus*, nov. var. W. United States.
216. *P. postpositus*, nov. sp. Washington.
217. *P. *? predatoris*, Meunier, Ann. Sc. Nat. (Zool.) Vol. 7, p. 89, 101, pl. 5, Baltic Amber.
f. 8-11 (1908).
218. *P. prorsus*, nov. sp. Labrador.
219. *P. proserpina*, Bezzi, Nova Acta Akad. Naturf. Halle, Vol. 91, p. 405 Peru.
[1909] (*Tachydromia*).
220. *P. pseudobicolor*, Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, C. Europe.
p. 82 [1909] (*Tachydromia*).
221. *P. pseudociliaris*, Strobl, ibidem, Vol. 46, p. 80 [1909] (*Tachydromia*). C. Europe.
222. *P. pseudoexiguus*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 181 Spain.
[1909] (*Tachydromia*).
223. *P. pseudomaculipes*, Strobl, Wien. Ent. Zeit. Vol. 18, p. 80 [1899] (*Tachydromia*). Spain.
224. *P. pseudounguiculatus*, Strobl, Verh. Zool.-bot. Ges. Wien, Vol. 59, p. 181 Spain.
[1909] (*Tachydromia*).
225. *P. pubescens*, nov. sp. Washington.
226. *P. pudens*, nov. sp. W. United States.
227. *P. bulchellus*, Walker, Ins. Brit. Dipt. Vol. 1, p. 130 (1851). England.
228. *P. pulicarius*, Meigen, Syst. Besch. Vol. 6, p. 343 [1830] (*Tachydromia*). C. Europe.
229. *P. pulverulentus*, nov. sp. California.
230. *P. pygmaeus*, Macquart, Mém. Soc. Sc. Lille, p. 154 [1823] (*Tachydromia*). France.
231. *P. pygmaeus*, Meigen (not Macquart), Syst. Besch. Vol. 7, p. 99 [1838] C. Europe.
(*Tachydromia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 92 (1862).
232. *P. rapidus*, Meigen, Syst. Besch. Vol. 3, p. 81 [1822] (*Tachydromia*). C. Europe.
233. *P. recurvus*, nov. sp. California.
234. *P. robustus*, Walker, Ent. Mag. Vol. 4, p. 228 (1837); Ins. Brit. Dipt. England.
Vol. 1, p. 128 (1851).
235. *P. rondensis*, Strobl, Mém. Soc. Esp. Hist. Nat. Vol. 3, p. 316 [1906] Spain.
(*Tachydromia*).
236. *P. rubefactus*, nov. sp. Illinois, Maryland.
237. *P. ruficornis*, Roser, Correspondenzbl. Land. Würtemb. Vol. 1, p. 54 C. Europe.
[1840] (*Tachydromia*).
238. *P. rufipes*, Meigen, Syst. Besch. Vol. 7, p. 99 [1838] (*Tachydromia*); C. Europe.
Schiner, Fauna Dipt. Austr. Vol. 1, p. 89 (1862).
239. *P. rufiventris*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 341 (1902). New Mexico.
240. *P. Sahlbergi*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 31 (9), p. 7, 8 Finland, Sweden.
(1908); ibidem, Vol. 37 (3), p. 81, f. 22 (1913); Ent. Tidskr. 1914,
p. 80 (1914).
f. *straminipes*, Strobl (not Zetterstedt), Mitteil. Naturw. Ver. Steiermark, Graz,

- Vol. 29, p. 109 [1892] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 412 [1907] (*Tachydromia stramineipes*); Medd. Soc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 77 (1909).
- var. *nigricollis*, Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 82 [1913] (*Tachydromia*). Finland, Sweden.
241. *P. sanguineus*, Arribalzaga, Natural. Argent. Vol. 1, p. 294 [1878] (*Tachydromia*); Bezzi, Ann. Mus. Hungar, Vol. 3, p. 459 [1905] (*Tachydromia*); Nova Acta Akad. Naturf. Halle, Vol. 91, p. 402 (1909). Argentina.
242. *P. sanguinolentus*, new name. Java.
sanguineus, Meijere (not Arribalzaga), Tijds. Ent. Vol. 56, Suppl. p. 76 [1914] (*Tachydromia*).
243. *P. satyriacus*, nov. sp. Labrador.
244. *P. semihyalipennis*, Grimmerthal, Bull. Soc. Imp. Moscou, Vol. 20 (2), p. 166 [1847] (*Tachydromia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 92 [1862] (*semihyalinus*). Russia.
245. *P. sericatus*, nov. sp. British Columbia.
246. *P. sericeus*, Macquart, Mém. Soc. Sc. Lille, p. 153 [1823] (*Tachydromia*). France.
247. *P. simplicipes*, nov. sp. Washington.
248. *P. siccatus*, nov. sp. Idaho.
249. *P. sordidus*, Zetterstedt, Ins. Lappon. p. 552 [1838] (*Tachydromia*); Dipt. Scand. Vol. 1, 300 [1842] (*Tachydromia*); ibidem, Vol. 8, p. 3007 [1849] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 120 [1892] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 410 [1907] (*Tachydromia*); Medd. Soc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 94 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 79 [1913] (*Tachydromia*). C. & N. Europe.
250. *P. spinosus*, nov. sp. California.
251. *P. splendens*, new name. Colorado.
montanus, Melander (not Becker), Trans. Amer. Soc. Vol. 28, p. 213, f. 7, 8 [1902] (*Elaphropeza*); Ent. News, Vol. 17, p. 372 [1906] (*Symballophthalma*).
252. *P. stigmatellus*, Zetterstedt, Dipt. Scand. Vol. 1, p. 306 [1842] (*Tachydromia*); ibidem, Vol. 8, p. 3010 [1849] (*Tachydromia*); Scholz, Zeitschr. Ent. Breslau, Vol. 5 (19) p. 58 [1851] (*Tachydromia*); Bondorff, Finl. tvåv. Ins. Dipt. Vol. 1, p. 151 [1861] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 29, p. 110 [1892] (*Tachydromia*); Frey, Zeitschr. Hym. Dipt. Vol. 7, p. 412 [1907] (*Tachydromia*); Medd. Soc. Fenn. Helsingfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 79 [1909] (*Tachydromia*); Wahlgren, Ent. Tidskr. Vol. 31, p. 95 [1910] (*Tachydromia*); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 87, f. 29 [1913] (*Tachydromia*). C. & N. Europe.
- pallipes*, Zetterstedt, part, Ins. Lappon. p. 553, part [1838] (*Tachydromia*).
253. *P. strigifrons*, Zetterstedt, Dipt. Scand. Vol. 8, p. 3005 [1849] (*Tachydromia*); Lundbeck, Dipt. Danica, Vol. 3, p. 293, f. 134 [1910] (*Tachydromia*); Becker, Ann. Mus. Zool. St. Petersburg, Vol. 17, p. 597 [1913] (*Tachydromia*); Frey, Acta Soc. Sc. Helsingfors, Vol. 37 (3), p. 79 [1913] (*Tachydromia*). N. Europe, Persia.
254. *P. Stroblianus*, new name. C. Europe.
diversipes, Strobl (not Coquillett) Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 84 [1909] (*Tachydromia*).
255. *P. subulifer*, Meijere, Tijds. Ent. Vol. 56, Suppl. p. 78 [1914] (*Tachydromia*). Java.
256. *P. sutor*, Melander, Occ. Pap. Boston, Soc. Nat. Hist. Vol. 5, p. 87 (1924). North America.

257. *P. tachistiformis*, nov. sp. Montana.
258. *P. tentialis*, Meigen, Syst. Besch. Vol. 3, p. 88 [1822] (*Tachydromia*); C. Europe.
Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 78 [1909] (*Tachydromia*).
259. *P. talaris*, nov. sp. North America.
260. *P. tectifrons*, Becker, Ann. Mus. Zool. St. Petersburg, Vol. 12, p. 314 Tibet.
[1907] (*Tachydromia*).
261. *P. tenax*, nov. sp. Washington.
262. *P. tenellus*, Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 223, f. 28, 30 United States.
(1902).
263. *P. teneriffensis*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 4, p. 41 [1908] Canary Islands.
(*Tachydromia*).
264. *P. tenuis*, nov. sp. Washington.
265. *P. tergestinus*, Egger, Verh. Zool.-bot. Ges. Wien, Vol. 10, p. 345 (1860). S. Europe.
266. *P. tersus*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 439 (1895); E. United States.
Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 219 (1902).
267. *P. testaceus*, Philippi, Verh. Zool.-bot. Ges. Wien, Vol. 15, p. 767 (1865); Chile.
Bezzi, Ann. Mus. Hungar. Vol. 3, p. 459 [1905] (*Tachydromia*);
Nova Acta Akad. Naturf. Halle, Vol. 91, p. 402 [1909] (*Tachydromia*).
268. *P. thoracicus*, Lundbeck, Dipt. Danica, Vol. 3, p. 317 [1910] (*Tachydromia*); Denmark.
Collin, Ent. M. Mag. London (2), Vol. 24, p. 130 [1913] (*Tachydromia*).
- *P. tibialis*, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 265 [1829] (*Tachydromia*), no description.
269. *P. trivialis*, Loew, Berl. Ent. Zeitschr. Vol. 8, p. 88 : Cent. 5, No. 76 E. United States.
(1864); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 438 (1896);
Proc. Ent. Soc. Wash. Vol. 5, p. 265 (1903).
270. *P. turgidus*, Becker, Zeitschr. Hym. Dipt. Vol. 7, p. 118 [1907] (*Tachydromia*). Algeria.
271. *P. uncinatus*, nov. sp. Costa Rica.
272. *P. unguiculatus*, Zetterstedt, Ins. Lappon. p. 551 [1838] (*Tachydromia*); N. & C. Europe.
Dipt. Scand. Vol. 1, p. 291 [1842] (*Tachydromia*); Scholz, Zeitschr.
Ent. Breslau, Vol. 5 (19), p. 58 [1851] (*Tachydromia*); Schiner,
Fauna Dipt. Austr. Vol. 1, p. 90 (1862); Strobl, Progr. Seitenstetten,
Vol. 14, p. 8 (1880); Becker, Berl. Ent. Zeitschrift, Vol. 31, p. 134
[1887] (*Tachydromia*); Strobl, Mitteil. Naturw. Ver. Steiermark,
Graz, Vol. 29, p. 111 [1892] (*Tachydromia*); Frey, Zeitschr. Hym.
Dipt. Vol. 7, p. 412 [1907] (*Tachydromia*); Medd. Soc. Fenn. Hel-
singfors, Vol. 34, p. 21 [1908] (*Tachydromia*); Strobl, Mitteil.
Naturw. Ver. Steiermark, Graz, Vol. 46, p. 80 [1909] (*Tachydromia*);
Wahlgren, Ent. Tidskr. Vol. 31, p. 95 [1910] (*Tachydromia*); Frey,
Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 82, f. 23 [1913]
(*Tachydromia*).
273. *P. univittatus*, Loew, Oefv. Kongl. Vet. Akad. Förhandl. Vol. 14, p. 371 S. Africa.
(1857); Dipterenf. Südafrik. Vol. 1, p. 269 (1860); Adams, Kansas.
Univ. Sc. Bul. Vol. 3, p. 158 (1905).
274. *P. valens*, nov. sp. (1). Java.

(1) *Platypalpus valens*, nov. sp. — Female. Length 4 mm. Robust, head, thorax and abdomen black, legs yellow, tarsi not annulate, tibial spur very large, antennæ short, posterior crossvein oblique. Front long and narrow, scarcely wider above, face linear; palpi white without, yellowish within, with a few strong white setæ, proboscis one-half the height of the head, black; antennæ three-jointed, the basal joint minute, the third joint ovate, scarcely longer than wide, the arista thin, very sparsely hairy and nearly three times as long as the antennæ. Mesonotum with sparse golden dust, the bristles black, upper pleuræ entirely pruinose, fringe of calypteres strong and

275. *P. valgus*, nov. sp. Washington.
 276. *P. varicolor*, Becker, Mitteil. Zool. Mus. Berlin, Vol. 4, p. 39 [1908] (Tachydromia). Canary Islands.
 277. *P. varipes*, Meigen, Syst. Besch. Vol. 3, p. 88 [1822] (Tachydromia). C. Europe.
 278. *P. varius*, Walker, Ins. Brit. Dipt. Vol. 1, p. 126 (1851); Schiner, Fauna Dipt. Austr. Vol. 1, p. 88 (1862); Becker, Berl. Ent. Zeitschr. Vol. 31, p. 134 [1887] (Tachydromia); Strobl, Mitteil. Naturw. Ver. Steiermark, Graz, Vol. 46, p. 81 [1909] (Tachydromia); Lundbeck, Dipt. Danica, Vol. 3, p. 302 [1910] (Tachydromia). C. Europe.
 279. *P. velox*, nov. sp. Washington.
 280. *P. venaticus*, nov. sp. W. North America.
 —. *P. venosus*, Stephens, Syst. Cat. Brit. Ins. Vol. 2, p. 265 [1829] (Tachydromia), no description.
 281. *P. verpus*, nov. sp. Washington.
 282. *P. versipes*, nov. sp. Virginia.
 283. *P. versutus*, Melander, Occ. Pap. Bost. Soc. Nat. Hist. Vol. 5, p. 87 (1924). E. United States.
 284. *P. vicarius*, Walker, Trans. Ent. Soc. London, n. s., Vol. 4, p. 148 (1857); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 438 (1895); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 220 (1902). North America.
 285. *P. Vierechi*, Melander, ibidem. Vol. 28, p. 340 (1902). New Mexico.
 286. *P. Villeneuvei*, Becker, Deut. Ent. Zeitschr. p. 647 (1910). Corsica.
 —. *P. vitripennis*, Becker, Ann. Mus. Zool. St. Petersburg, Vol. 17, p. 597 [1913] (Tachydromia), attributed to Meigen, no description. Persia.
 287. *P. vittatus*, nov. sp. Wyoming.
 var. *perimerus*, nov. var. Alberta.
 288. *P. vuluificus*, nov. sp. Montana.
 289. *P. xanthochiton*, nov. sp. Washington.
 290. *P. xanthopodus*, new name. North America.
 gilvipes, Coquillett (not Meigen), Proc. Wash. Acad. Sc. Vol. 2, p. 422 (1900); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 224 (1902).

EXTINCT EMPIDIDÆ : FOSSIL SPECIES AND GENERA

All the described fossil Empididæ come from the Tertiary. Some more recent species of *Empis* and *Rhamphomyia* are known from copal, but have not been described. Two pre-Tertiary species have been assigned to the Empididæ, namely *Empidia Wulpæ* and *Hasmona Leo*, but it is not at all certain that they belong to this family. The Baltic amber has produced a great number of specimens of Empididæ; Meunier called attention to fifteen hundred inclusions that he had studied; but the descriptions and figures too often miss the salient characters to be of much value in deciphering phylogeny. It may be stated that the Tertiary Empididæ almost all belong to genera of the present day holarctic fauna. Such genera as are extinct present no startling characters, and could very well produce living species without causing astonishment. The following notes show the status of the extinct genera, which have been assigned to this family.

yellowish. Abdomen shining, the last two small segments opaque yellow, styles of the ovipositor long and narrow. Legs robust, front femora thickened, with two flexor rows of pale short, sparse hairs, front tibiæ outwardly ciliate on the apical half with black setæ and closely biserially black-setulose beneath, patella and tibial spur black, middle tibiæ two-thirds as long as their femora, tarsi uniformly blackish apically. Halteres yellow. Wings hyaline, veins firm and black, first vein ending at the middle of the wing, second, third and fourth sections of the costa proportioned 1 : 0.6 : 0.12, third and fourth veins converging apically, posterior crossvein located beyond the anterior a distance equal to the anterior, sections of the fifth vein proportioned 0.8 : 1 : 1.2, marginal cilia shorter than the anterior crossvein.

One specimen, in the U. S. National Museum, from the Bryant and Palmer collection. Tjibodas, Mt. Gede, Java.

1. GENUS BURMITEMPIS, COCKERELL

Burmitempis, Cockerell, Amer. Journ. Sc. Vol. 44, p. 367 (1917).

Characters. — Head broad, dichoptic, third antennal joint very large, oblong-oval, hairy; with very long simple arista; wings large and broad, first basal cell long, emitting three veins from apex, and one from lower side, second posterior cell somewhat contracted apically, no discal cell, second basal small, narrow and nearly vertical, anal cell large and apically truncate, anal angle of wing rectangular; halteres enormous, with long thick knob; legs long, ordinary; genitalia small and simple.

Dr. Cockerell located this genus in the Empididæ, apparently nearest to *Microsania*, but suggestive of the Tachydromiinae in some of its characters. The removal of *Microsania* to the Platyppezidæ may carry with it this genus. If the vein arising from the lower side of the first basal cell is the anterior branch of the media and the lower outer side of the basal the long and longitudinally placed anterior crossvein then the homologies of the neuration are clear though strangely aberrant. If, however, the small vein at the apex of the first basal cell is the anterior crossvein then the radius has two branches and the media three, a condition not in conformity with expectations among the Diptera. From the data at hand the systematic position of this fossil can not be definitely stated.

Geographical distribution.

1. *B. halteralis*, Cockerell, Amer. Journ. Sc. Vol. 44, p. 367, f. 7 (1917). Burmese Amber,
Miocene.

2. GENUS DRAPETIELLA, MEUNIER

Drapetiella, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 86, note 3, p. 97 (1908).

Characters. — This genus was located with *Drapetis*, differing by the ovate style-bearing third joint of the antennæ and the greatly inclined second basal cell. As a short style is anomalous in the entire subfamily Tachydromiinae and as the figure shows an impossible venation this genus is far from being certain. It possibly is an Ocydromiinae, with open discal cell, such as is shown by *Euthyneura aperta* to-day.

Geographical distribution.

1. *D. defnita*, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 89, 97, pl. 3, Baltic Amber.
f. 16, pl. 4, f. 2 (1908).

3. GENUS ELECTROCYRTOMA, COCKERELL

Electrocyrtoma, Cockerell, Ann. Ent. Soc. Amer. Vol. 10, p. 22 (1917).

Characters. — Resembling *Bicellaria*, but with lengthened arista, slender tibiæ and tarsi, no intercalary vein, and with the fork of second and third veins much before anterior crossvein. Thorax gibbous, finely hairy; discal cell open but with a slight bend in fourth vein at two-fifths of its last section; base of front femora about two times as thick as apex.

Geographical distribution.

1. *E. burmanica*, Cockerell, Ann. Ent. Soc. Amer. Vol. 10, p. 22, f. 5 (1917). Burmese Amber,
Miocene?

4. GENUS EMPIDIA, WEYENBERGH

Empidia, Weyenberg, Arch. Mus. Teyl, Haarlem, Vol. 2, p. 258 (1869).

Characters. — Handlirsch, who has examined the type, states that it is not all at clear that this fossil belongs to the Empididæ. The length of the specimen is about nineteen millimeters. The *Empis* wing pictured with the fossil has nothing to do with the insect.

Geographical distribution.

1. *E. Wulpi*, Weyenberg, Arch. Mus. Teyl, Haarlem, Vol. 2, p. 258, pl. 34, f. 5, 5a (1869); Tijdschr. v. Ent. (2), Vol. 4, p. 237 (1869); Period. Zool. Vol. 1, p. 89 (1874); Scudder, Bull. U. S. Geol. Surv. Vol. 31, p. 88 (1886); Meunier, Ann. Soc. Sc. Bruxelles, Vol. 19, p. 178 (1895); Handlirsch, Foss. Ins. p. 634 (1909). Lithographic chalk, Solenhofen; Jura.

5. GENUS EUTHYNEURELLA, MEUNIER

Euthyneurella, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 113 (1908).

Characters. — « This genus differs from *Euthyneura* Macquart by some small peculiarities in the wings and by the scutellar hairs not being vertical. » From the figures of the wing and of the antenna the insect seems to be a *Trichina*.

Geographical distribution.

1. *E. longirostris*, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 91, 113, pl. 8, f. 8, 9; Vol. 9, p. 1 (1908). Baltic Amber.

6. GENUS HASMONA, GIEBEL

Hasmona, Giebel, Ins. Vorwelt, p. 209 (1856).

Characters. — This species is apparently Nematoceros, according to Handlirsch. The distinctive feature of the genus is the neuration which Giebel states is unlike that of living Empids. There is a strong simple vein extending parallel to the costa to the wing-tip, followed by three simple veins united before the middle by an oblique crossvein. The insect measures two millimeters.

Geographical distribution.

1. *H. leo*, Giebel, Brodie, Foss. Ins. p. 34, 121, pl. 3, f. 11 [1845] (*Empidæ*); Giebel, Ins. Vorwelt, p. 209 (1856); Handlisch, Foss. Ins. p. 634, pl. 51, f. 14 (1908). Vale of Warbour, England; Purbecks, Malm; Jura.

7. GENUS HILARITES, HEER

Hilarites, Heer, Viertjahresb. Naturf. Ges. Zürich, Vol. 1, p. 38 (1856).

Characters. — Heer stated that this insect apparently belongs to *Hilara*, but since the wings are not preserved it was impossible to make a certain determination.

Geographical distribution.

1. *H. bellus*, Heer, Viertjahresb. Naturf. Ges. Zurich, Vol. 1, p. 38, pl. 2, f. 5 (1856). Aix, France; Ligurian, Lower Oligocene.

8. GENUS MEGHYPERELLA, MEUNIER

Meghyperella, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 112 (1908).

Characters. — Antennæ three-jointed, the last joint conical, a little longer than its distinct arista. Wings rather broad and pointed, the discal cell emitting two posterior veins, the intercalary absent. The genus is apparently related to *Leptopeza*, differing in the possession of a more generalized arista. It may be a predecessor of *Stenoproctus*.

Geographical distribution.

1. *M. porphyropsoides*, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 91, 112, Baltic Amber. pl. 8, f. 5-7 (1908)

9. GENUS MESOMYITES, COCKERELL

Mesomyites, Cockerell, Proc. U. S. Nat. Mus. Vol. 52, p. 377 (1917).

Characters. — *Mesomyites* was originally described as a new genus of the Empididæ, and the small size, slender wing and general features of the neuration are suggestive of the Clinoceratinæ. However, the second basal cell emits a vein parallel with the discal cell, the second branch of the cubitus. Thus the anal cell is widely open, an impossible condition among the Brachycera. Dr. Cockerell, in Nature, Vol. 103, p. 44 (1919), has referred his genus to the anomalous tipulid genus *Styringomyia*. The species on which *Mesomyites* was based is the following.

Geographical distribution.

1. *M. concinnus*, Cockerell, Proc. U. S. Nat. Mus. Vol. 52, p. 377, pl. 31, Isle of Wight, Oligocene. f. 7 (1917).

10. GENUS OUSTALETIMYIA, MEUNIER

Oustaletimyia, Meunier, Ann. Soc. Ent. France, Vol. 62, Bull. p. 332 (1893).

Characters. — A provisional genus described as being related to *Ædalea* but with simple femora and two-jointed antennæ.

Geographical distribution.

1. *O. succinorum*, Meunier, Ann. Soc. Ent. France, Vol. 62, Bull. p. 332 Baltic Amber. (1893).

11. GENUS PALÆOEDALEA, MEUNIER

Palæoedalea, Meunier, Ann. Soc. Sc. Bruxelles, Vol. 26, p. 101 (1902).

Characters. — Related to *Ædalea* in neuration and three-jointed elongate antennæ, but with slender simple legs.

Geographical distribution.

1. *P. samlandica*, Meunier, Ann. Soc. Sc. Bruxelles, Vol. 26, p. 101 (1902). Baltic Amber.
elegans, Meunier, ibidem, Vol. 26, f. 5 (1902).

12. GENUS PALÆOLEPTOPEZA, MEUNIER

Palæoleptopeza, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 111 (1908).

Characters. — Near *Leptopeza* but with spinose hind femora.

Geographical distribution.

1. *P. gracilis*, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 91, 111, pl. 7, f. 15, 16, pl. 8, f. 1-4 (1908). Baltic Amber.

13. GENUS PALÆOPARAMESIA, MEUNIER

Palæoparamesia, Meunier, Ann. Soc. Sc. Bruxelles, Vol. 26, p. 98 (1902); Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 107 (1908).

Characters. — It is impossible to tell to which division of *Clinocera*, in the broad sense, this form belongs.

Geographical distribution.

1. *P. Proosti*, Meunier, Ann. Soc. Sc. Bruxelles, Vol. 26, p. 98, f. 3, 4 (1902); Baltic Amber.
Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 90, 107 (1908).

14. GENUS PARATHALASSIELLA, MEUNIER

Parathalassiella, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 90 (1908).

Characters. — Discal cell present, the fourth vein forked, claws and pulvilli long and robust, third joint of the antennæ conical, the arista as long as the antenna. From this information alone it is impossible to determine the position of this fossil fly. Meunier was familiar with the figure of *Parathalassius* in the Entomological News, 1906, and located the genus near this form, but the furcate fourth vein indicates a very different insect.

Geographical distribution.

1. *P. problematica*, Meunier, Ann. Sc. Nat. (Zool.) 9 ser. Vol. 7, p. 90, 106, pl. 6, 17, 18; pl. 7, f. 2 (1908). Baltic Amber.

15. GENUS PROTÆDALEA, COCKERELL

Protædalea, Cockerell, Proc. U. S. Nat. Mus. Vol. 57, p. 252 (1920).

Characters. — A precursor of *Edalea* and *Anthalia*, its ancestral traits evidenced by the lengthened first and second veins, narrow discal cell, oblique forking of the cubitus, the posterior branch of which squarely terminates the anal cell, simple legs, thorax only moderately gibbous, and large size, being over four mm. in length. Antennæ short the last joint obpyiform, style indistinguishable, proboscis retracted, discal cell unusually long, fourth vein abbreviated, venter of the male with sparse long hairs, body black, wings dusky.

Geographical distribution.

1. *P. brachystoma*, Cockerell, Proc. U. S. Nat. Mus. Vol. 57, p. 252, f. 8 Eocene, Green River Shales, Colorado.

16. GENUS THIRZA, GIEBEL

Thirza, Giebel, Ins. Vorwelt, p. 209 (1856).

Characters. — Antennæ very short, first joint cylindrical, second and third joints globose; eyes separated; proboscis short and thick. Thorax convex; femora short and slightly thickened at middle, tibiæ twice as long as femora, with two apical bristles, metatarsi half as long as tibiæ. The wings have a peculiar neurulation, which is difficult to visualize, and therefore the original description will be quoted: « Die Schulterader verhält sich wie gewöhnlich, aber die äussere Mittelader entspringt von einer die Schulterader mit der innern Mittelader verbindenden Querader, und zwar sogleich zweiästig. der äussere Ast endet einfach an der kleinen Querader, welche die Schulterader mit dem innern Ast verbindet; dieser gabelt sich kurz vor der Flügelmitte in demselben Niveau, wo der innerste Ast der schulterader sich gabelt; beide Aeste sind dann später durch eine Querader verbunden, von welcher der gewöhnliche Zwischenlängsast ausgeht. Auch die innere Mittelader entspringt nicht unmittelbar am Grunde, sondern von einer feinen Querader neben diesem. Sie biegt sich vor der Mitte zum Innenrande und sendet an der Biegungsstelle die kleine Querader zum innersten Ast der äussern Mittelader, von welcher ein Längsast abgeht. Das Analfeld durchziehen zwei von der Randkerbe and stark divergirende Aeste. »

The type and only species is *Th. Naumanni* Giebel. The genus was located in the Hybotidæ by its describer

Geographical distribution.

1. *Th. Naumanni*, Giebel, Ins. Vorwelt, p. 210 (1856).

Baltic Amber, Lower
Oligocene.

List of the Fossil Empididæ Belonging to Existing Genera.

References to these species occur in the lists of species of the various genera.

Brachytoma spinulosum Loew.

Chelifera detestata Meunier.

Chelipoda delicata Meunier, *dolosa* Meunier, *rustica* Meunier (Subgenus *Phyllodromia*) *vaga* Meunier.

Drapetis brevis Meunier, *decolorata* Meunier, *decorata* Meunier, *mortua* Meunier, *villosa* Meunier.

Dysaletria diabolica Meunier.

Empis bulbirostris Meunier, *carbonum* Germar, *florissantana* Cockerell, *macilentia* Meunier, *macrophthalma* Förster, *mala* Meunier, *malefica* Meunier, *melia* Heyden, *miocenica* Cockerell, *mordax* Meunier, *morosella*, n. n.; *perdita* Cockerell, *personata* Meunier, *Poeppigi* Giebel, *pulvillata* Loew, *stilicornis* Meunier, *tibialis* Meunier, *tritava*, n. n.

Gloma hirta Loew.

Hemerodromia detestata Meunier.

Hilara exilis Meunier, *Heerii* Meunier, *litigiosa* Meunier, *macilentia* Meunier, *tarda* Meunier.

Hybos exilis Meunier, *tenuis* Meunier.

Leptopeza clavipes Loew, *concinna* Meunier, *spinigera* Meunier.

Micrempis eocenica Meunier, *suspiciosa* Meunier.

Microphorus defunctus Handlirsch, *eocenicus* Meunier, *pulidus* Meunier.

Edalea robusta Meunier.

Platypalpus concitatus Meunier, *eversoris* Meunier, *interfectoris* Meunier, *predatoris* Meunier.

Ragus generosa Meunier.

Rhamphomyia ablata Meunier, *angusta* Meunier, *antipedalis* Loew, *corrupta* Meunier, *crinitarsis* Loew, *distans* Loew, *enena* Cockerell, *errabunda* Meunier, *formosa* Loew, *hypolitha* Cockerell, *insolita* Meunier, *involuta* Meunier, *media* Meunier, *obtusa* Meunier, *adaloides* Meunier, *polymorpha* Meunier, *porrecta* Meunier, *pterocha* Loew, *ptilocha* Loew, *remilarsis* Loew, *sepulta* Cockerell, *ungulina* Loew.

Tachydromia stilpon Meunier.

Tachypeza egelata Meunier, *voracis* Meunier.

Timalphes acuticornis Loew, *gracilis* Meunier, *palpata* Loew.

Trichopeza sucina, n. n.

GENERA REMOVED FROM THE EMPIDIDÆ (1).

The following genera have been held by various authors as belonging to the Empididæ. The resemblances to members of this family have proved to be superficial and the genera have one by one been removed to other families. The forms here placed in the Bombyliidæ are highly specialized in that family, with neuration reduced in accompaniment with their small size. They can hardly be regarded as annectent forms, linking the Bombyliidæ with the Empididæ, because they are more highly specialized in other respects than the Hybotinæ with which they connect. Their resemblances therefore are to be regarded as parallel developments. The status of the genera in question is given herewith.

1. GENUS HILARIMORPHA, SCHINER

Hilarimorpha, Schiner, Wien. Ent. Monatschr. Vol. 4, p. 54 (1860); Fauna Dipt. Austr. Vol. 1, p. 116 (1862); Mik, Verh. Zool.-bot. Ges. Wien. Vol. 31, p. 329 (1881); Williston, Psyche, 1888, p. 99 (1888); Bigot, Bull. Soc. Zool. France, 1891, p. 15 (1891); Osten-Sacken, Berl. Ent. Zeitschr. Vol. 35, p. 303 (1890); Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 388 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 336 [1902] (*Hilaromorpha*); Kertész, Cat. Dipt. Vol. 3, p. 333 (1908); Verrall, Brit. Flies, Vol. 5, p. 243 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 552 (1910).

Characters. — This genus contains a few small blackish bristleless species that run to the Empididæ in existing keys of Diptera. The general opinion is that *Hilarimorpha* belongs to the Leptidæ, in which family it is aberrant in having minute empodia, reduced tibial spurs and no discal cell. Five species have been described.

Type species : *H. singularis*, Egger.

Geographical distribution.

1. *H. maculata*, Matsumura, Addit. Tokyo, Vol. 2, p. 357, pl. 21, f. 19 (1916). Japan.
2. *H. Mikii*, Williston, Psyche, 1888, p. 100 (1888); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 337 (1902). Illinois.
3. *H. obscura*, Bigot, Bull. Soc. Ent. France (6), Vol. 7, p. 141 (1887); Ann. Soc. Ent. France (6), Vol. 9, p. 129 (1889); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 337 (1902). California.
4. *H. singularis*, Egger, Verh. Zool.-bot. Ges. Wien, Vol. 10, p. 346 (1860); Schiner, Fauna Dipt. Austr. Vol. 1, p. 117 (1862); Verh. Zool.-bot. Ges. Wien, Vol. 18, p. 909 (1868); Mik ibidem, Vol. 31, pl. 16, f. 19-21 (1881); Williston, Stett. Ent. Zeit. Vol. 46, p. 401 (1885); Verrall, Brit. Flies, Vol. 5, p. 243, f. 178 (1909). Europe.
5. *H. tristis*, Egger, Verh. Zool.-bot. Ges. Wien, Vol. 10, p. 347 (1860); Schiner, Fauna Dipt. Austr. Vol. 1, p. 117 (1862); Mik, Verh. Zool.-bot. Ges. Wien, Vol. 31, pl. 16, f. 22 (1881). C. Europe.

(1) A. L. Tonnoir, Rec. Austr. Mus. 1925, transfers *Ironomyia* (vide antea, p. 48) to the Platypezidæ.

P. Tillyard, Insects of Australia, 1926, p. 366, transfers *Sciadocera* (antea, p. 48) to the Phoridæ, notwithstanding its different antennal structure.

2. GENUS *MICROSANIA*, ZETTERSTEDT

Microsania, Zetterstedt, Isis, Vol. 1, p. 30 (1837); Fauna Ins. Lappon. p. 534 (1838); Dipt. Scand. Vol. 1, p. 333 (1842); Bigot, Ann. Soc. Ent. France (6), Vol. 9, p. 123 (1889); Melander, Man. N. Amer. Dipt. p. 225 (1908); Lundbeck, Dipt. Danica, Vol. 3, p. 18 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 43, 47 (1910); Melander, Psyche, Vol. 29, p. 43-48 (1922).

Microcyrtia, Bigot, Ann. Soc. Ent. France (3), Vol. 10, p. 557, 564 (1857); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 253 (1903).

Pachypeza, Lioy (not Serville, Coleoptera, 1835), Atti. Inst. Sc. Veneto, Venezia (3), Vol. 9, p. 723 (1863); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 255 (1903).

Platytelma, Rondani, Dipt. Ital. Vol. 1, p. 138 (1856); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 256, 261 (1903).

Characters. — The species of *Microsania* look much like *Bicellaria* with which genus they have repeatedly been associated. *Microsania* departs from all Empid genera in possessing a large and inflexed hypopygium and a single median row of acrostichal hairs. The costa is setulose and is interrupted at the end of the first vein, the anal cell is pointed, the proboscis is short and fleshy, and the middle tibiae possess apical bristles.

The genus belongs to the Platypezidae, as discussed by the writer in *Psyche* for April, 1922, being closely related to *Opelia* and *Platycnema*. Loew recognized the Platypezid relationships when he described one of the American species as *Platycnema imperfecta*. The other European writers have all located *Microsania* with the Empididae. Almost none of the Empididae are common to both Europe and North America, but two of the three species of *Microsania* occur on both continents.

Type species : *M. stigmatalis*, Zetterstedt.

Geographical distribution.

1. *M. pallipes*, Meigen, Syst. Besch. Vol. 6, p. 356 [1830] (*Cyrtoma*); Macquart, Hist. Nat. Dipt. Vol. 1, p. 360 [1834] (*Cyrtoma*); Rondani, Dipt. Ital. Vol. 1, p. 138 [1856] (*Platytelma*); Bigot, Ann. Soc. Ent. France (3), Vol. 5, p. 557, 564 [1857] (*Microcyrtia*); Schiner, Fauna Dipt. Austr. Vol. 1, p. 76 [1862] (*Cyrtoma*); Lioy, Atti. Inst. Veneto, Sc. Venezia (3), Vol. 9, p. 723 [1863] (*Pachypeza*). C. Europe.
 2. *M. pectipennis*, Meigen, Syst. Besch. Vol. 6, p. 356, pl. 66, f. 15, 16 [1830] (*Cyrtoma*); Zetterstedt, Dipt. Scand. Vol. 1, p. 335 [1842] (*pectinipennis*); ibidem, Vol. 8, p. 3013 [1849] (*pectinipes*); Wahlgren, Ent. Tidskr. Vol. 31, p. 47 [1910] (*pectinipennis*); Melander, Psyche, Vol. 29, p. 46 (1922). Europe, North America.
 3. *M. stigmatalis*, Zetterstedt, Fauna Ins. Lappon. p. 534 [1838] (*Cyrtoma*); Dipt. Scand. Vol. 1, p. 334 (1842); ibidem, Vol. 8, p. 3013 (1849); ibidem, Vol. 13, p. 4998 (1859); Bonsdorff, Finl. tväv. Ins. Dipt. Vol. 1, p. 157 (1861); Lundbeck, Dipt. Dan. Vol. 3, p. 19, f. 3 (1910); Wahlgren, Ent. Tidskr. Vol. 31, p. 47, f. 3 (1910); Frey, Acta Soc. Sc. Fenn. Helsingfors, Vol. 37 (3), p. 8 (1913); Melander, Psyche, Vol. 29, p. 46 (1922). Europe, North & Central America.
- imperfecta*, Loew, Berl. Ent. Zeitschr. Vol. 9 : Cent. 6, No. 82 [1865] (*Platycnema*); Aldrich, Cat. Dipt. N. Amer. p. 342 [1905] (? *Platycnema*).

3. GENUS MALTHACOTRICHA, BECKER

Heterotropus, Loew, Besch. Eur. Dipt. Vol. 3, p. 180 (1873).

Malthacotricha, Becker, Ann. Mus. Zool. Acad. Sc. St. Pétersb. Vol. 12, p. 312, pl. 2, f. 18 (1907); Kertész, Cat. Dipt. Vol. 6, p. 14 (1909); Becker, Ann. Mus. Zool. Acad. Sc. St. Pétersb. 1912, Vol. 17, p. 482 (1913).

Characters. — Becker, in 1907, described *Malthacotricha glauca* as a new genus of Empididæ, locating it in the Hybotinæ because of the lengthened anal cell and the horizontal proboscis, even though the insect has the third vein forked and the discal cell emitting three posterior veins. Later, in 1913, Becker assigned his genus to the Bombyliidæ as synonymous with the older *Heterotropus* Loew. The genus occurs in Central and Western Asia, with two known species. Apparently it is closely related to the American *Procrates* Melander, which see on the following page.

Geographical distribution of the species of *Heterotropus*.

1. *H. albidipennis*, Loew, Besch. Eur. Dipt. Vol. 3, p. 180 (1873); Becker, Transcaspia. Ann. Mus. Zool. Acad. Sc. St. Pétersb. Vol. 17, p. 586 (1913).
2. *H. glaucus*, Becker, ibidem. Vol. 12, p. 313, pl. 2, f. 13 [1907] (*Malthacotricha*); ibidem, Vol. 17, p. 482, f. 25 (1913).

4. GENUS MYTHICOMYIA, COQUILLETT

Mythicomyia, Coquillett, Ent. News Philad. Vol. 4, p. 209 (1893); Proc. U. S. Nat. Mus. Vol. 18, p. 409 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 337 (1902); Coquillett, Proc. Ent. Soc. Wash. Vol. 5, p. 253 (1903); Williston, Man. N. Amer. Dipt. p. 211, 218 (1908); Kertész, Cat. Dipt. Vol. 3, p. 333 (1908); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 573 (1910); Cresson, Ent. News Philad. Vol. 26, p. 448-456 (1915); Greene, Proc. Ent. Soc. Wash. Vol. 26, p. 60-64 (1924).

Heterhybos, Brethes, Revista Chilena Hist. Nat. Vol. 23, p. 40 (1919).

Characters. — Coquillett erected the genus *Mythicomyia* in 1893, placing it in the Empididæ. Since that time the group has been shifted here and there by various writers. Aldrich and Kertész, in their respective catalogs, placed it in the Leptidæ, the writer in 1902, then unacquainted with specimens, left it in the Empididæ but segregated it in a subfamily, the Mythicomyiinæ, Cresson located it in the Empididæ, and Williston and Greene probably in the Bombyliidæ.

Mythicomyia is represented by eight described species, restricted to the Western United States, where the minute flies are found hovering over bush-flowers, such as ocean spray. In addition, *Heterhybos hyalinipennis* Brethes was described as a new genus of Empididæ from Rio Blanco, South America. This genus is completely synonymous with *Mythicomyia*. These species are closely related to the European *Glabellula* Bezzi, 1902, redescribed by Greene, 1924, as *Pachyneres*, and belong to the subfamily Cyrtosinæ of the Bombyliidæ, as defined by Becker, Ann. Mus. Zool. Acad. Sc. St. Pétersb. Vol. 17, p. 472 (1913). *Glabellula* has the second basal cell fused with the discal cell and the femora more or less enlarged. In *Mythicomyia* the discal cell is complete, the two basals weakly separated and the femora are slender.

Type species : *M. Rileyi*, Coquillett, the original species.

Geographical distribution.

1. *M. armata*, Cresson, Ent. News Philad. Vol. 26, p. 455, f. 3 (1915). W. United States.
2. *M. armipes*, Cresson, ibidem, Vol. 26, p. 454, f. 5, 6 (1915). New Mexico.
3. *M. atra*, Cresson, Ent. News Philad. Vol. 26, p. 456 (1915). New Mexico.
4. *M. californica*, Greene, Proc. Ent. Soc. Wash. Vol. 26, p. 61 (1924). California.
5. *M. flavipes*, Cresson, Ent. News Philad. Vol. 26, p. 452, f. 1, 2 (1915). W. United States.
6. *M. hyalinipennis*, Brethes, Revista Chilena. Hist. Nat. Vol. 23, p. 40 [1920] Chile.
(*Heterhybos*).
7. *M. minula*, Greene, Proc. Ent. Soc. Wash. Vol. 26, p. 62 (1924). New Mexico.
8. *M. pictipes*, Coquillett, Proc. U. S. Nat. Mus. Vol. 25, p. 103 (1902); Cresson, Ent. News Philad. Vol. 26, p. 453 (1915). S. W. United States.
9. *M. Rileyi*, Coquillett, Ent. News Philad. Vol. 4, p. 209 (1893); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 338 (1902); Cresson, Ent. News Vol. 26, p. 454 (1915). S. W. United States.
10. *M. scutellata*, Coquillett, Proc. U. S. Nat. Mus. Vol. 25, p. 102 (1902); Cresson, Ent. News Philad. Vol. 26, p. 451, f. 4 (1915). W. United States.
11. *M. tibialis*, Coquillett, Proc. U. S. Nat. Mus. Vol. 18, p. 409 (1896); Melander, Trans. Amer. Ent. Soc. Vol. 28, p. 338 (1902); Cresson, Ent. News Philad. Vol. 26, p. 453 (1915). W. United States.

5. GENUS PRORATES, MELANDER

Prorates, Melander, Ent. News Philad. Vol. 17, p. 372 (1906); Williston's Man. N. Amer. Dipt. p. 224 (1908); Kertész, Cat. Dipt. Vol. 6, p. 3 (1909); Coquillett, Proc. U. S. Nat. Mus. Vol. 37, p. 595 (1910).

Characters. — Small opaque gray bristleless species, somewhat resembling a Therevid, stigma strong, third and fourth veins both forked, alula well developed, legs simple, third antennal joint with a microscopic style. Head globose, broader than long, occiput concave, the face extremely short and retracted, eyes of the male contiguous from the antennæ to the vertex, the facets of the upper two-thirds enlarged, of the female broadly separated on the front, the facets uniform, front of the female with parallel sides, no ocellar bristles; eyes reduced in back beneath, the lower part of the head made up of the occiput, mouth opening large, with rounding edges; proboscis rigid, porrect, slightly shorter than the head, palpi retracted; antennæ three-jointed, the basal joints similar and small, the third joint compressed, conical, tipped with a microscopic bristle. Thorax but little convex, nearly bare, bristles very weak, one notopleural, one postalar and one pair of scutellars present, mesopleuræ bearing weak hairs. Abdomen cylindrical, scarcely tapering in either sex, pygidium terminal, not enlarging the abdomen, entirely included within a pair of lateral valves, no ovipositor. Legs slender, simple, nowhere thickened, devoid of all bristles, the hairy covering very short, pulvilli minute. Wings rather broad, anal angle rectangular, no basal bristle, costal hairs microscopically small, costa continuing to the posterior branch of the third vein, auxiliary vein distinct from the first and gently curving forward at its end to meet the costa, a distinct elliptical stigma surrounding the end of the first vein which is not far beyond the middle of the wing, second vein rather short, ending nearer the first than to the tip of the wing, pedicel of the second and third veins arising over the middle of the second basal cell, anterior crossvein at the middle of the discal cell, the first basal therefore longer than the second, discal cell pointed apically, the posterior crossvein nearly parallel with the hind margin of the wing, petiole of the second posterior cell very short, none of the posterior veins attaining the hind margin, anal cell larger than usual, its outer angle acute, anal vein reaching the hind margin, alula well developed in both sexes but not margined, calypteres large for an Empid, membranous and with a thickened fringed margin.

Type species : *P. claripennis*, Melander, the only species known. Many specimens of this Insect were taken by Mr. H. L. Viereck in 1902 at Alamogordo, New Mexico, at which time and place he took also the two species of the recently described genus *Cænotus* Cole. *Cænotus*, which is strikingly like *Prorates*, although generically quite distinct, was assigned by Cole to the Therevidæ, in which family it is aberrant in lacking the « small crossvein » at the apex of the second basal cell and in being bristleless.

Prorates has been regarded as a primitive but anomalous Empid. Judging by the structure of its proboscis it probably is anthophilous. In appearance it suggests a minute Therevid or Bombyliid with reduced neuration, or a Scenopinid. According to existing tabulations to the families of Diptera the species would be located in the Empididæ in the subfamily Hybotinæ. From all the members of this group, however, it departs in having the costa stopping at the third vein, the auxiliary vein distinct and ending in the costa, the antennal style microscopic, and the mesopleuræ furnished with some pubescence.

Meghyperus, which is more clearly Hybotine than *Prorates* is, shows many parallel characters, such as the distinct though evanescent auxiliary vein, presence of alula, dichopticism of female, and bristleless legs. These important characters, all at variance with other Hybotinæ, perhaps indicate primitive traits retained from a common ancestor, but more likely are the result of a parallel evolution among insects having similar flower-frequenting habits.

It is not yet time to remove *Meghyperus* from the Hybotinæ, but *Prorates* may properly be placed in the Bombyliidæ, where with *Malthacotricha* (= *Heterotropus*) and also with *Cænotus* it will comprise the subfamily Heterotropinæ. The three genera may be separated as follows :

1. Proboscis correct; first basal cell much longer than the second. 2.
 Proboscis very short, not projecting; first basal cell not greatly longer than the
 second Genus CÆNOTUS, Cole.
2. Pygidium deeper than long; discal cell wider than the second basal, emitting
 three posterior veins; third antennal joint subulate, with bristle-tipped style. Genus HETEROTROPUS, Loew.
 Pygidium longer than deep; discal cell narrower than the second basal, fourth
 vein petiolate; third antennal joint conical, with microscopic style . . . Genus PRORATES, Melander.

Geographical distribution.

1. *P. claripennis*, Melander, Ent. News Philad. Vol. 17, p. 373, f. (1906); New Mexico.
 Williston's Man. N. Amer. Dipt. p. 219, f. 5 (1908).

ADDENDA : RECENTLY DESCRIBED EMPIDIDÆ

GENUS ACARTERUS, LOEW

A. varipes, Senior-White, Spol. Zeylan. Colombo, Vol. 12, p. 394 (1924). Ceylon.

GENUS ARIASELLA, GIL

Ariasella, Gil, Bol. Soc. Esp. Hist. Nat. Vol. 23, p. 151 (1923) (1).

A. semiaptera, Gil, Bol. Soc. Esp. Hist. Nat. Vol. 23, p. 151, figs. (1923). Spain.

(1) *Ariasella*, a genus related to *Piellainia*, Arias, but characterized by having vestigial wings. Type *A. semiaptera*, Gil, a species slightly under three millimeters in length. Thorax compressed, body blackish, legs especially the hind femora and tibiæ, robust, one notopleural, two scutellar bristles; face narrow, one pair ocellar bristles, third antennal joint circular, with dorsal arista; wings vestigial, reaching the fifth abdominal segment, the basal two-thirds consisting of a strap-like pedicel, with only the costal and a single longitudinal vein; halteres absent.

GENUS BICELLARIA, MACQUART

- B. nigrita*, Collin, Ent. Mo. Mag. Vol. 62, p. 190 (1926). England.
B. subpilosa, Collin, ibidem, Vol. 62, p. 190 (1926). England.

GENUS BRACHYSTOMA, MEIGEN

- B. Hamiltoni*, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 451, f. 38-41 New Zealand.
 (1923).

GENUS CHELIFERA, MACQUART

- C. angusta*, Collin, Ent. Mo. Mag. Vol. 63, p. 95 (1927). England.
C. aperticanda, Collin, ibidem, Vol. 63, p. 95 (1927). England.
C. astigma, Collin, ibidem, Vol. 63, p. 94 (1927). England.
C. concinnicauda, Collin, ibidem, Vol. 63, p. 95 (1927) N. W. Europe.
 monostigma, Zetterstedt, not Meigen.
 precatoria, var. B. Zetterstedt
 stigmatica, Lundbeck, not Schiner.
C. diversicauda, Collin, Ent. Mo. Mag. Vol. 63, p. 95 (1927). British Isles.
C. erecta, Collin, ibidem, Vol. 63, p. 94 (1927). British Isles.
C. fontanalis, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 422, fig. [1923] New Zealand
 (*Hemerodromia*).
C. pectinicauda, Collin, Ent. Mo. Mag. Vol. 63, p. 95 (1927). England.

GENUS CHELIPODA, MACQUART

- C. oliraensis*, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 443, f. 11-19 New Zealand.
 [1923] (*Litauomyia*).

GENUS CLINOCERA, MEIGEN

- C. hirtiloba*, Spenser, Schr. Physik-ökonom. Ges. Königsberg, Vol. 64, p. 13 Prussia.
 [1924] (*Atalanta. Euclidia*).

GENUS DRAPETIS, MEIGEN

- D. (Elaphropeza) abdomennotata*, Senior-White, Mem. Dept. Agric. India, Ceylon.
 Vol. 7, p. 151 (1922).
D. convergens, Collin, Ent. Mo. Mag. Vol. 62, p. 149 (1926). England.
D. (Elaphropeza) distincta, Senior-White, Mem. Dept. Agric. India, Vol. 7, Ceylon.
 p. 152 (1922)
D. incompleta, Collin, Ent. Mo. Mag. Vol. 62, p. 148 (1926). England.
 exilis, Loew and Lundbeck, not Meigen.
D. (Elaphropeza) nigropunctata, Senior-White, Mem. Dept. Agric. India, Vol. 7, India.
 p. 152 (1922).
D. (Elaphropeza) notatithorax, Senior-White, ibidem, Vol. 7, p. 151, pl. 14, Ceylon.
 f. 10 (1922).
D. parilis, Collin, Ent. Mo. Mag. Vol. 62, p. 148 (1926). England.
D. (Elaphropeza) plumicornia, Senior-White, Mem. Dept. Agric. India, Vol. 7, Ceylon.
 p. 150, pl. 14, f. 9 (1922).

GENUS EMPIMORPHA, COQUILLET

- E. torrentalis*, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 463, f. 65-68 (1923). New Zealand.

GENUS EMPIS, LINNÆUS

Kritempis, Collin, Ent. Mo. Mag. Vol. 62, p. 236 (1926) (1).

Leptempis, Collin, ibidem, Vol. 62, p. 235 (1926) (2).

Rhadinempis, Collin, ibidem, Vol. 62, p. 236 (1926) (3).

- E. (Rhadinempis) Bazini*, Collin, Ent. Mo. Mag. Vol. 62, p. 236 (1926). France.
E. (Pterempis) cyrenaica, Bezzi, Boll. Mus. Zool. Torino, Vol. 39, N. S. (18), p. 12 (1924). Cyrenaica.
E. dalmatica, Oldenberg, Deutsche Ent. Zeitschr. p. 320 (1925). Dalmatia.
E. (Xanthempis) latabilis, Collin, Ent. Mo. Mag. Vol. 62, p. 237 (1926). England.
E. lamellicornis, Becker (antea, p. 159).
 subsp. *planctica*, Collin, Ent. Mo. Mag. Vol. 63, p. 23 (1927). England.
 subsp. *protarsalis*, Collin, ibidem, Vol. 63, p. 24 (1927). England.
E. limata, Collin, Ent. Mo. Mag. Vol. 63, p. 22 (1927). England.
E. Lindneri, Oldenberg, Deutsche Ent. Zeitschr. p. 317 (1925). Dalmatia.
E. pennaria, Fallen (antea, p. 167).
 subsp. *bicuspidata*, Collin, Ent. Mo. Mag. Vol. 63, p. 22 (1927). England.
 subsp. *laminata*, Collin, ibidem, Vol. 63, p. 22 (1927). England.
E. prævia, Collin, Ent. Mo. Mag. Vol. 63, p. 23 (1927). England.
E. subbrunipennis, Oldenberg, Deutsche Ent. Zeitschr. p. 319 (1925). Dalmatia.
E. subinfumata, Malloch, No. Am. Fauna, No. 46, p. 184 (1923). Pribilof Islands.
E. (Anachrostichus) Verralli, Collin, Ent. Mo. Mag. Vol. 63, p. 21 (1927). England.
E. (s. str.) Woodi, Collin, ibidem, Vol. 53, p. 21 (1927). England.

GENUS EUTHYNEURA, MACQUART

E. Halidayi, Collin, Ent. Mo. Mag. Vol. 62, p. 214 (1926). England.

GENUS FRAUDATOR, HUTTON (4)

Fraudator, Hutton, Trans. N. Zeal. Inst. 1900, Art. 1, p. 23 (1900); Tillyard, Ins. Austr. and N. Zealand, p. 365 [1926] (ref. to Empididæ).

F. perspicuus, Hutton, Trans. N. Zeal. Inst. 1900, Art. 1, p. 23 (1900); New Zealand.
 Tillyard, Ins. Austr. N. Zeal. p. 365 (1926).

(1) **Kritempis**, subgenus of *Empis*. Type *E. algira*, Macquart: includes *livida*, Linnæus, *Maquarti*, Becker (= *geniculata*, Macquart, not Zetterstedt), *macrofalpa*, Egger, *nigrimana*, Becker, *sibillina*, Bezzi. Anal vein faint, not reaching margin, discal cell not truncate, with the first or the first and second posterior veins not reaching the margin, cubital fork rather acute; a small bristle in comb at tip of hind tibiae behind; male facets scarcely enlarged, no rows of long bristles beneath the middle femora, upper lamellæ of pygidium often very large, always much larger than the side lamellæ, in *livida* composing almost the whole of the pygidium; species never very small.

(2) **Leptempis**, subgenus of *Empis*. Type *E. grisea*, Fallen. Rather large, narrow-bodied, long-legged, wings ample, never blackish, sometimes maculated, anal vein distinct to margin; hypopygium with side lamellæ long and narrow, upper lamellæ rather prominent and bilobed, penis long and usually very undulated; female legs extensively yellow.

(3) **Rhadinempis**, subgenus of *Empis*. Type *E. Bazini*, Collin, the only assigned species. Resembles the *Holoclera* group of *Rhamphomyia*, but has the third vein forked. Antennæ short, the third joint short and pointed, about as long as the basal two together, and half as long as the microscopically pubescent arista; acrostichals absent, dorsocentral bristles uniserial; axillary excision of wings greater than a right angle.

(4) Originally assigned to the Bombyliidæ, but superficially resembling *Timalphes fumosa*, Hutton. Type, and only species, *F. perspicuus*, Hutton. Eyes contiguous, upper facets coarser; third antennal joint swollen at base and gradually tapering to a long point; proboscis short; thorax black, humeri brown, scutellum yellowish, pleuræ silvery; abdomen linear, brown; wings smoky, stigma large, third vein forked, third basal cell closed and petiolate, fourth vein arched; 7 mm. in length.

GENUS HALPOMERA, MACQUART

- H. chilensis*, Brethes, Revista Chilena Hist. Nat. Vol. 28, p. 105 (1924). Chile.

GENUS HEMERODROMIA, MEIGEN

- H. (s. str.) adulatoria*, Collin, Ent. Mo. Mag. Vol. 63, p. 96 (1927). England.
H. (s. str.) baetica, Collin, ibidem, Vol. 63, p. 96 (1927). England.
H. (s. str.) laudatoria, Collin, ibidem, Vol. 63, p. 96 (1927). England.

GENUS HILARA, MEIGEN

- H. apta*, Collin, Ent. Mo. Mag. Vol. 63, p. 66 (1927). England.
H. auripila, Curran, Can. Ent. Vol. 58, p. 247 (1926). Alberta.
H. biseta, Collin, Ent. Mo. Mag. Vol. 63, p. 64 (1927). England.
H. brevistyla, Collin, ibidem, Vol. 63, p. 28 (1927). England.
pinetorum, of British lists, not Zetterstedt.
H. Crickmayi, Curran, Can. Ent. Vol. 58, p. 246 (1926). N. W. Canada.
H. Curtisi, Collin, Ent. Mo. Mag. Vol. 63, p. 26 (1927). England.
H. dracophylli, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 456, f. 50 (1923). New Zealand.
H. flavinceris, Miller, ibidem, Vol. 54, p. 453, f. 42, 43 (1923); Tillyard, Ins. Austr. N. Zeal. p. 365, f. W 56 (1926). New Zealand.
H. fossalis, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 460, f. 54-56 (1923). New Zealand.
H. galactoptera, Strobl (antea, p. 124).
vallium, Verrall-Collin, Ent. Mo. Mag. Vol. 63, p. 62 [1927] (no description).
H. Garretti, Curran, Can. Ent. Vol. 58, p. 248 (1926). Alberta.
H. granditarsis, Curran, ibidem, Vol. 58, p. 248 (1926). Alberta.
H. griseifrons, Collin, Ent. Mo. Mag. Vol. 63, p. 65 (1927). England.
H. hirtella, Collin, Ent. Mo. Mag. Vol. 63, p. 64 (1927). England.
H. hirtipes, Collin, ibidem, Vol. 63, p. 65 (1927). England.
H. hyperborea, Frey, Mem. Acad. Sc. Russ. Vol. 29 (10), p. 12 (1915). N. Siberia.
H. implicata, Collin, Ent. Mo. Mag. Vol. 63, p. 66 (1927). England.
H. littoralis, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 454, f. 44-47 (1923). New Zealand.
H. media, Collin, Ent. Mo. Mag. Vol. 63, p. 63 (1927). England.
H. merula, Collin, ibidem, Vol. 63, p. 63 (1927). England.
H. monedula, Collin, ibidem, Vol. 63, p. 63 (1927). England.
H. morata, Collin, ibidem, Vol. 63, p. 67 (1927). England.
H. nigrohirta, Collin, ibidem, Vol. 63, p. 65 (1927). England.
H. platyura, Loew (antea, p. 118).
obesa, Verrall-Collin, Ent. Mo. Mag. Vol. 63, p. 61 [1927] (no description).
H. primula, Collin, Ent. Mo. Mag. Vol. 63, p. 64 (1927). England.
H. quadriseta, Collin, ibidem, Vol. 63, p. 64 (1927). England.
H. rejecta, Collin, ibidem, Vol. 63, p. 26, 66 (1927). England.
cinereomicans, of British lists, not Strobl.
H. rufopunctata, Curran, Can. Ent. Vol. 58, p. 245 (1926). Alberta.
H. setosa, Collin, Ent. Mo. Mag. Vol. 63, p. 66 (1927). England.
H. submaura, Collin, ibidem, Vol. 63, p. 63 (1927). England.
H. subpollinosa, Collin, ibidem, Vol. 63, p. 26 (1927). England.
quadrifaria, Collin, ibidem, Vol. 49, p. 106 (1913), not Strobl.
H. vector, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 454, f. 48, 49 (1923). New Zealand.
H. Woodi, Collin, Ent. Mo. Mag. Vol. 63, p. 63 (1927). England.

GENUS HILAREMPIS, BEZZI

- H. insularis*, Brethes, Revista Chilena Hist. Nat. Vol. 28, p. 106 (1924). Chile.
H. Moreirai, Brethes, ibidem, Vol. 28, p. 106 (1924). Chile.
H. nigra, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 462, f. 63, 64 (1923). New Zealand.

GENUS ITEAPHILA, MACQUART

- I. curva*, Curran, Can. Ent. Vol. 57, p. 24 (1925). Labrador.

GENUS LEPTOPEZA, MEIGEN

- L. fulvescens*, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 448 (1923). New Zealand.
flavescens, Miller, ibidem, Vol. 54, f. 34-36 (1923).
L. nigra, Miller, ibidem, Vol. 54, p. 447, f. 29-33 (1923). New Zealand.

GENUS OROPEZELLA, COLLIN

- Oropezella**, Collin, Ent. Mo. Mag. Vol. 62, p. 214 (1926).
Leptometopiella, nov. gen., antea, p. 70.

GENUS PLATYPALPUS, MACQUART

- P. agilellus*, Collin, Ent. Mo. Mag. Vol. 62, p. 153 [1926] (*Tachydromia*). England.
P. albifacies, Collin, ibidem, Vol. 62, p. 156 [1926] (*Tachydromia*). England.
P. aristatus, Collin, ibidem, Vol. 62, p. 157 [1926] (*Tachydromia*). England.
P. aurantiacus, Collin, ibidem, Vol. 62, p. 152 [1926] (*Tachydromia*). England.
P. calcaratus, Collin, ibidem, Vol. 62, p. 155 [1926] (*Tachydromia*). England.
P. Carteri, Collin, ibidem, Vol. 62, p. 158 [1926] (*Tachydromia*). England.
P. ceylonensis, nov. nom. Ceylon.
monticolus, Senior-White (not Melander), Spol. Zeyl. Colombo, Vol. 12, p. 399 [1924] (*Tachydromia*).
P. clarandus, Collin, Ent. Mo. Mag. Vol. 62, p. 157 [1926] (*Tachydromia*). England.
P. coarctatus, Collin, ibidem, Vol. 62, p. 158 [1926] (*Tachydromia*). N. Europe.
flavipes, Zetterstedt and Lundbeck, part.
P. engadinicus, Mik, var. *infuscatus*, Oldenberg (not Meigen), Entom. Mitteil. Alps.
 Berlin, Vol. 13, p. 88 [1924] (*Tachydromia*).
P. eximius, Oldenberg, ibidem, Vol. 13, p. 84 [1924] (*Tachydromia*). C. Europe.
P. extricatus, Collin, Ent. Mo. Mag. Vol. 62, p. 188 [1926] (*Tachydromia*). England.
P. incertus, Collin, ibidem, Vol. 62, p. 152 [1926] (*Tachydromia*). England.
P. infectus, Collin, ibidem, Vol. 62, p. 157 [1926] (*Tachydromia*). England.
P. ingenuus, Collin, ibidem, Vol. 62, p. 155 [1926] (*Tachydromia*). England.
P. interstinctus, Collin, ibidem, Vol. 62, p. 158 [1926] (*Tachydromia*). N. Europe.
flavipes, Zetterstedt and Lundbeck, part.
P. latistrigatus, Meijere, Tijdschr. v. Ent. Vol. 67, Suppl. p. 16 [1924] (*Tachydromia*). Sumatra.
P. luteolus, Collin, Ent. Mo. Mag. Vol. 62, p. 186 [1926] (*Tachydromia*). England.
P. nanus, Oldenberg, Deutsche Ent. Zeitschr. 1924, p. 234 [1924] (*Tachydromia*). C. Europe.
P. optivus, Collin, Ent. Mo. Mag. Vol. 62, p. 157 [1926] (*Tachydromia*). England.
P. pallidicornis, Collin, ibidem, Vol. 62, p. 186 [1926] (*Tachydromia*). N. W. Europe.
albicornis, Zetterstedt, part, and Lundbeck.

- P. parvicanda*, Collin, Ent. Mo. Mag. Vol. 62, p. 154 [1926] (*Tachydromia*). England.
P. politus, Collin (not *politus*, nov. sp., antea, p. 333 (1); ibidem, Vol. 62, p. 155 [1926] (*Tachydromia*). England.
P. praeinctus, Collin, ibidem, Vol. 62, p. 159 [1926] (*Tachydromia*). England.
P. stigma, Collin, ibidem, Vol. 62, p. 188 [1926] (*Tachydromia*). England.
P. subtilis, Collin, ibidem, Vol. 62, p. 188 [1926] (*Tachydromia*). England.
P. sylvicola, Collin, ibidem, Vol. 62, p. 153 [1926] (*Tachydromia*). England.
P. tantalus, Collin, ibidem, Vol. 62, p. 158 [1926] (*Tachydromia*). England.
P. Verralli, Collin, ibidem, Vol. 62, p. 185 [1926] (*Tachydromia*). England.
P. zeylanicus, Senior-White, Mem. Dept. Agric. India, Vol. 7, p. 148 [1922] Ceylon.

GENUS RAGAS, WALKER

- R. setosa*, Bezzi, Boll. Mus. Zool. Torino, Vol. 39, N. S. (18), p. 14 (1924). Cyrenaica.

GENUS RHAMPHOMYIA, MEIGEN

- Acionemphis**, Collin, Ent. Mo. Mag. Vol. 62, p. 216 (1926) (2).
Amydroneura, Collin, ibidem, Vol. 62, p. 216 (1926) (3).
R. (Pararhamphomyia) albatarsis, Collin, ibidem, Vol. 62, p. 216 (1926). England.
R. (Acionemphis) albohirta, Collin, ibidem, Vol. 62, p. 218 (1926). N. W. Europe.
 ? *eupterota*, Frey, not Loew.
R. armipes, Sack, Rept. Norweg. Exped. Nov. Zeml. No. 15, p. 6, fig. (1923). Nova Zemlya.
R. brevipila, Oldenberg, Deutsche Ent. Zeitschr. 1922, p. 342 (1922). Alps.
R. (Lundstroemiella) brevistylata, Oldenberg, Konowia, Vol. 6, p. 12 (1927). C Europe.
R. (Holoclera) caliginosa, Collin, Ent. Mo. Mag. Vol. 62, p. 218 (1926). England.
R. claripennis, Oldenberg, Deutsche Ent. Zeitschr. p. 339 (1922). Alps.
R. (Pararhamphomyia) cribrata, Oldenberg, Konowia, Vol. 6, p. 20 (1927). Lapland.
R. (Lundstroemiella) dalmatica, Oldenberg, ibidem, Vol. 6, p. 10 (1927). Dalmatia.
R. (Lundstroemiella) Dudai, Oldenberg, ibidem, Vol. 6, p. 16 (1927). S. Europe.
R. engadinica, Oldenberg, Deutsche Ent. Zeitschr. p. 344 (1922). Alps.
R. (s. str.) hercynica, Oldenberg, Konowia, Vol. 6, p. 28 (1927). S. Europe.
R. hirsuta, Oldenberg, Deutsche Ent. Zeitschr. p. 346 (1922). Alps.
R. (Amydroneura) hirsutipes, Collin, Ent. Mo. Mag. Vol. 62, p. 219 (1926). England.
R. hirtimana, Oldenberg, Deutsche Ent. Zeitschr. p. 340 (1922). Alps.
R. (Lundstroemiella) Kertessi, Oldenberg, Konowia, Vol. 6, p. 18 (1927). Hungary.
R. (Holoclera) lamellata, Collin, Ent. Mo. Mag. Vol. 62, p. 218 (1926). England.
R. (Pararhamphomyia) microphyga, Collin, ibidem, Vol. 62, p. 217 (1926). England.
R. minor, Oldenberg, Deutsche Ent. Zeitschr. p. 340 (1922). Alps.
R. (Pararhamphomyia) murina, Collin, Ent. Mo. Mag. Vol. 62, p. 216 (1926). England.
R. (Pararhamphomyia) nudipes, Oldenberg, Konowia, Vol. 6, p. 25 (1927). Germany.
R. opacithorax, Malloch, No. Am. Fauna, No. 46, p. 185 (1923). Pribilof Islands.

(1) *P. politus*, nov. sp., antea, p. 333, may be renamed *politellus*, nov. sp.

(2) **Acionemphis**, Collin, subgenus of *Rhamphomyia*. Type *R. albohirta*, Collin; including *R. eupterota*, Loew, *galactoptera*, Strobl, *longipes*, Meigen, *minor*, Oldenberg, *nox*, Oldenberg, and *umbripes*, Becker. Labella long, narrow and very short-haired; both sides of prosternum and on episterna of prothorax with hairs; no distinct bristle in comb at tip of hind tibiae behind.

(3) **Amydroneura**, Collin, subgenus of *Rhamphomyia*. Type *R. erythropthalma*, Meigen; including *R. bipila*, Strobl, *crassicauda*, Strobl, *gibba*, Fallen, *hirsutipes*, Collin, *pseudogibba*, Strobl and *serotina*, Oldenberg. Discal cell elongate, with the vein forming its anterior margin very indistinct, often visible only as a slight depression on the wing-surface.

- R. Porteri*, Brethes, Revista Chilena Hist. Nat. Vol. 28, p. 106 (1924). Chile.
R. (Lundstroemiella) rupestris, Oldenberg, Konowia, Vol. 6, p. 4 (1927). Alps.
R. (Lundstroemiella) subalpina, Oldenberg, ibidem, Vol. 6, p. 11 (1927). S. Europe.
R. (s. str.) subcinerascens, Collin, Ent. Mo. Mag. Vol. 62, p. 218 (1926). England.
R. (s. str.) sulcatella, Collin, ibidem, Vol. 62, p. 217 (1926). N. W. Europe.
sulcata, Meijere, Tijd. 1918, p. 135.
R. (Holoclera) trigemina, Oldenberg, Konowia, Vol. 6, p. 19 (1927). Germany.

GENUS STILPON, LOEW

- S. nubila*, Collin, Ent. Mo. Mag. Vol. 62, p. 149 (1926). N. W. Europe.
lunata, Walker, pl. 5.
graminum, var. B, Fallen and Zetterstedt.

GENUS SYNECHES, WALKER

- S. Jardinei*, Senior-White, Spol. Zeyl. Colombo, Vol. 12, p. 395 (1924). Ceylon.
S. maculithorax, Senior-White, ibidem, Vol. 12, p. 397 (1924). Ceylon.
S. peradeniyæ, Senior-White, ibidem, Vol. 12, p. 396 (1924). Ceylon.

GENUS TACHYDROMIA, MEIGEN

- T. Halidayi*, Collin, Ent. Mo. Mag. Vol. 62, p. 150 [1926] (*Tachista*). England.
morio, Walker, not Zetterstedt.
T. halterata, Collin, Ent. Mo. Mag. Vol. 62, p. 151 [1926] (*Tachista*). England.
T. Woodi, Collin, ibidem, Vol. 62, p. 151 [1926] (*Tachista*). England.

GENUS TRICHINA, MEIGEN

- T. bilobata*, Collin, Ent. Mo. Mag. Vol. 62, p. 213 (1926). British Isles; C. Europe.

GENUS TRICHOPEZA, RONDANI

- T. longipennæ*, Miller, Trans. Proc. N. Zeal. Inst. Vol. 54, p. 446, f. 20-28 (1923). New Zealand.

CORRIGENDA

Oldenberg, 1924, published the results of an examination of von Roser's collection, which alters the nomenclature of various species, as follows :

Hilara albiventris Roser is not *heterogastra* Nowicki, but is the species later described by Wood as *albocingulata*.

Hilara ferruginea Roser (nom. nudum) is *thoracica* Macquart, which is stated to be the same as *flava* Schiner.

Hilara geniculata Roser becomes *litorea* Fallen.

Hilara albitarsis Roser is the same as *Braueri* Strobl.

Hilara albipennis Roser is the same as *niveipennis* Zetterstedt, which it antedates.

Empis pallens Roser is not *æqualis* Loew, but is *parvula* Egger, which it antedates.

Bicellaria aterrima Roser in part is probably *spuria* Fallen, and in part is *Atelestus pulicarius* Fallen, of the Platypezidæ.

Bicellaria tibialis Roser is *Atelestus pulicarius* Fallen.

Drapetis pygmæa Roser is not *assimilis* Fallen, but is probably *pusilla* Loew.

Tachydromia nigromaculata Roser becomes *Drapetis* (*Elaphropeza*) *ephippiata* Fallen.

Tachypeza costalis Roser belongs to the genus *Tachydromia* (*Tachista*).

Tachypeza brevipennis Roser belongs to *Tachydromia*, and is the same as the later-described *microptera* Loew.

Tachypeza obscura Roser is not *Winthemi* Zetterstedt, but belongs to *Platypalpus*, being synonymous with *leucochæta* Becker.

Platypalpus ruficornis Roser is the same as *thoracicus* Lundbeck.

Collin, in the Entomologists' Monthly Magazine, 1926-1927, is issuing a cursory review of British Empididæ, which contains many changes in nomenclature, largely the result of examinations of the type collections of Fallen, Meigen, Zetterstedt, Curtis, Walker and Lundbeck. Collin's review is presumably not completed at the time the final proofs of this fascicle are being returned, so the student of this family is referred to forthcoming issues of the magazine for notes on the subfamilies Clinoceratinæ and Hybotinæ. A summary of Collin's findings so far as published is presented herewith:

Platypalpus ambiguus Macquart, on which Bigot founded the genus *Crossopalpus*, is the same species as *Drapetis flexuosa* Loew, instead of being *Drapetis flavipes* Macquart, as generally supposed. The subgenus *Endrapetis*, Melander, therefore, falls into synonymy with *Crossopalpus* as a subgenus of *Drapetis*.

Drapetis (*Crossopalpus*) *curvipes* Meigen is not *assimilis* Fallen, but includes *aterrima* Curtis, *nigra* Fallen and Zetterstedt, but not Meigen, *moriella* Zetterstedt, *picipes* Zetterstedt and *setigera* Lundbeck, but not Loew.

Drapetis (*Crossopalpus*) *nigritella* Zetterstedt is not *aterrima* Curtis, but includes *aterrima* Lundbeck and *nervosa* Loew.

Drapetis (*Crossopalpus*) *minima* Meigen is a valid species, not the same as *assimilis* Fallen, but *minima* Zetterstedt is *assimilis* Fallen, as is also *exilis* Zetterstedt of the Insecta Lapponica.

Drapetis exilis Meigen includes *pusilla* Loew and the female of *nigripes* Zetterstedt.

Platypalpus minutus Meigen is the same as *exiguus* Meigen, but the *exiguus* of the British lists is *niger* Meigen.

Platypalpus fasciatus Lundbeck, not Meigen, is *cursitans* Fabricius, and *cursitans* Lundbeck is *laticinctus* Walker.

Platypalpus glaber Meigen is the same as *luteus* Meigen.

Platypalpus infuscatus Meigen becomes *annulipes* Meigen.

Platypalpus ecalceatus Zetterstedt is a valid species, larger than *calceatus* Meigen.

Bicellaria melæna Haliday is synonymous with *spuria* Fallen, but *sulcata* Zetterstedt is distinct from *spuria* Fallen.

Ædalea pallipes Zetterstedt is transferred to the genus *Trichina*.

Euthyneura Myrtilli Macquart includes *consobrina* Zetterstedt and *rostrata* Zetterstedt, which were placed in *Anthepeiscopus*, *antea*, p. 107.

Microphorus crassipes Macquart is distinct from *anomalus* Meigen.

Rhamphomyia sulcata Meigen, *rugicollis* Meigen, and *propinqua* Meijere are the same.

Empis barbata Macquart is a *Rhamphomyia*, and is the same as *bicolor* Macquart 1823, not 1827, and *pennata* Macquart.

Rhamphomyia plumipes Frey, Zetterstedt, Lundbeck, etc., is *geniculata* Meigen.

Rhamphomyia æthiops Zetterstedt is distinct from *caudata* Zetterstedt, but *longestylata* Frey is the same as *caudata* Zetterstedt.

Rhamphomyia attenuata Frey is *ignobilis* Zetterstedt.

Rhamphomyia villosa Zetterstedt, *morio* Zetterstedt, and *fumipennis* Zetterstedt are one species.

Empis vernalis of Meigen, Zetterstedt, etc. is *pennaria* Fallen, but the *pennaria* of the British lists is *nuntia* Meigen.

Empis (Pachymeria) picipes Meigen includes *brevicornis* Loew and *maculipes* Zetterstedt.

Empis (Pachymeria) scotica Curtis (1824) is the same as *palparis* Egger (1860).

Empis (Pachymeria) Erberi Nowicki becomes *tumida* Meigen.

Empis lamellicornis ♂ described by Lundbeck is *gymnopoda* Bezzi.

Empis dasythrix Meijere is *plumipes* Zetterstedt, as is also *decora* of Lundbeck.

Empis confluens Becker is *albipennis* Meigen.

Hilara lasiopterygia Lundbeck is *manicata* Meigen.

Hilara carinthiaca Becker is *fuscipes* Fabricius.

Hilara intermedia Fallen is not the same as *fuscipes* Fabricius, but is the species generally known as *pubipes* Loew.

Hilara pinetorum Zetterstedt is *clypeata* Meigen.

Hilara bivittata Strobl becomes *longevittata* Zetterstedt.

Hilara galactoptera Strobl is a distinct species from *pseudosaratrix* Strobl.

Chelifera melanocephala Haliday (1833) and Mik is the same as *trapezina* Zetterstedt (1838), but Lundbeck's *melanocephala* is *flavella* Zetterstedt.

Hemerodromia albicornis of Gercke, and possibly of Walker, is *raptoria* Meigen.

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EXPLANATION OF THE PLATES

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 — 3. *Euhybos purpureus* Walker, ♂.
 — 4. *Syneches phthia* Walker, ♂.
 — 5. *Hybos reversus* Walker, ♂.
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 — 7. *Parahybos chiragra* Bezzi, ♂.
 — 8. *Trichina clavipes* Meigen, ♂.
 — 9. *Ædalea tristis* Scholz, ♂.
 — 10. *Ocydromia glabricula* Fallen, ♂.

PLATE 2

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 — 12. *Porphyrochroa palliata* Coquillett, ♂.
 — 13. *Lamprembis chichimeca* Wheeler & Melander, ♀.
 — 14. *Deuteronista breviventris* Philippi, ♂.
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 — 16. *Brochella monticola*, nov. sp., ♂.
 — 17. *Oreothalia pelops* Melander, ♂.
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 — 74. *Gloma fuscipennis* Meigen. Pygidium.
 — 75. *Proclinopyga fistulator*, nov. sp. Pygidium.
 — 76. *Hormopeza brevicornis* Loew. Wing.
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 — 78. *Philetus memorandus*, nov. sp. Pygidium.

- Fig. 79. *Leptopeza ruficollis* Meigen. Wing.
 — 80. *Anthepiscopus stentor* Melander. Pygidium.
 — 81. *Philetus schizophorus*, nov. sp. Pygidium.
 — 82. *Euthyneura Myrtilli* Macquart. Wing.
 — 83. *Tenontomyia gracilipes* White. Wing (from White).
 — 84. *Ragas unica* Walker. Pygidium.
 — 85. *Rhamphomyia furcifer* Wheeler & Melander. Wing.
 — 86. *Ironomyia nigromaculata* White. Wing (from White).

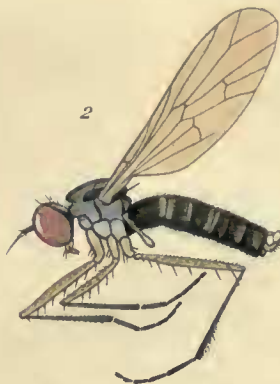
The manuscript of this fascicle was sent to the Genera Insectorum on January 10, 1925, from the State College of Washington. M. P. Wytzman completed the editing of the printer's copy just prior to his death. The presswork has been supervised by Miss H. Van Hamme, as successor to M. Wytzman.

A. L. Melander,
 College of the City of New York.
 11 May, 1927.

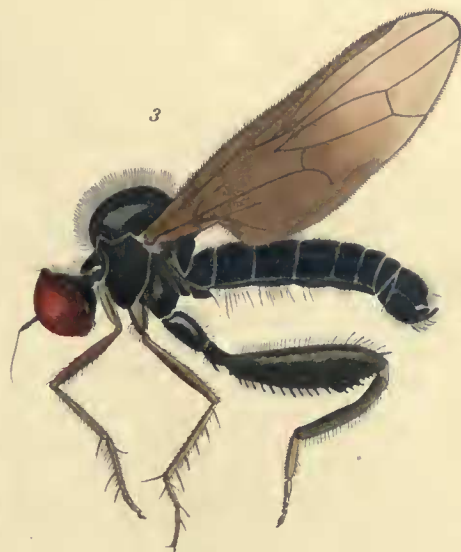
POSTSCRIPT. — In the interim since May 11, the conclusion of Collin's article on British Empididæ has appeared in the Entomologists' Monthly Magazine for May, 1927, pages 97 and 98. This section adds *Hemerodromia melangyna* Collin, p. 97, and *Wiedemannia rhynchops*, subsp. *insularis* Collin, p. 98, both from the British Isles. Descriptions have also appeared of **Hilara royai*, p. 98 (Oligocene, Spain) Collado, Nota sobre algunos insectos fósiles de Ribesalbes, Castellón (Bol. Inst. Geol. Esp. Madrid, Vol. 46, p. 89-107 [1926]); and *Empis deterra*, p. 96, and *Rhamphomyia bigelowi*, p. 97 (Ontario) Walley, Two new species of Empididæ from Ontario (Canad. Ent. Vol. 59, p. 96-98 [1927]). (Final proofs returned to the printer June 21, 1927.)



Proxites claripennis Mel. ♂



Brachystoma vesiculosum Fabr. ♂



Eulybos purpureus Walk. ♂



Syneches phthia Walk. ♂



Hybos reversus Walk. ♂



Syneches (Harpamerus) Bakeri, n.sp. ♂



Trichina clavipes Meig. ♂



Parahybos chiragra Bezzi. ♂



Edalea tristis Scholz. ♂



Ocydromia glabricula Fall. ♂

FAM. EMPIDIDÆ

SUBFAM. BRACHYSTOMATINÆ, HYBOTINÆ, OCYDROMIINÆ



Haplocyrtoma procera Loew, ♂



Porphyrochroa palliata Coquil., ♂



Lempiremyia chichimeca Wheel & Mel., ♀



Deuterygonista breviventris Phil., ♂



Philoctena lutea Bezzi, ♀



Brochella monticola, n. sp., ♂



Oreothalia pelops Mel., ♂



Clinocera nigra Meig., ♂



Roederioides juncta Coquil., ♀

FAM. EMPIDIDÆ

SUBFAM. OCYDROMIINÆ, EMPIDINÆ, CLINOCERATINÆ

20



Boreodromia bicolor Loew, ♂

21



Niphogenia eucera, n. sp., ♂

22



Ceratempis longicornis n. sp., ♂

23



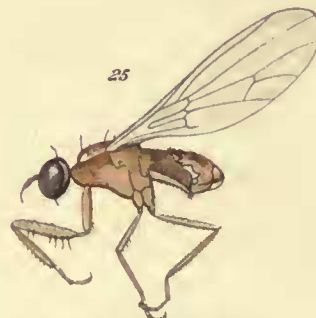
Synamphotera pallida Loew, ♂

24



Dolichocephala irrorata Fall., ♂

25



Chelipoda vocatoria Fall., ♂

26



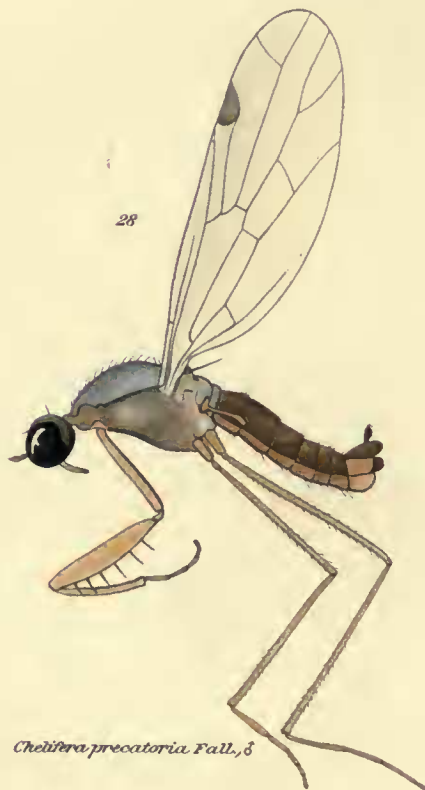
Hemerodromia oratoria Fall., ♂

27



Colubris cavatis, n. sp., ♂

28



Chelitra precatoria Fall., ♂

FAM. EMPIDIDÆ

SUBFAM. CLINOCERATINÆ, HEMERODROMIINÆ



Tachydromia connexa Meig. ♂



Platypalpus cursitans Fabr. ♂



Megagrappa pubescens Loew, ♂



Tachyemphus pictipes, n. sp., ♂



Tachypexa discifera, n. sp., ♂



Drapetis (Euclapetis) spectabilis Mel. ♂



Drapetis (Ctenodrapetis) aristalis Mel. ♂



Microemphus nana, n. sp., ♂



Stalpon. graminum Full. ♂

FAM. EMPIDIDÆ

SUBFAM. TACHYDROMIINÆ



Anomalempis tacoma, n. sp. ♀



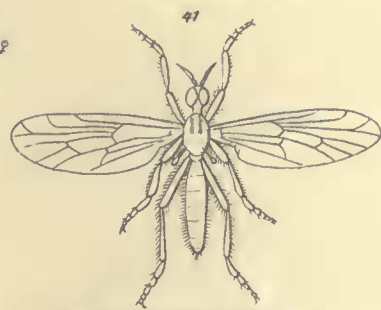
Syndus polita Loew, ♂



Meghyperus occidentis Coq., ♂



Acarterus unicolor Loew.



Homalocnemis nigripennis Phil.



Stenoproctus unipunctatus Loew.



Scelolabes bivitatus Phil.



Empis pennipes Linn., ♀



Empis (Pachymeria) femorata Fabr., ♂



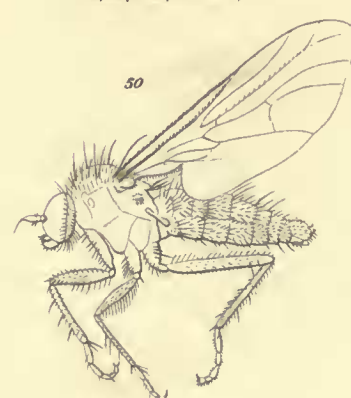
Empis pennipes Linn., ♂



Lucistomyia insolita Mel., ♂



Bicellaria spuria Meig., ♂



Oreogeton basalis Loew, ♂

FAM. EMPIDIDÆ

SUBFAM. BRACHYSTOMATINÆ, HYBOTINÆ, OCYDROMIINÆ, EMPIDINÆ



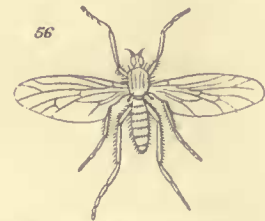
Oreogeton mitrephorus, n.sp., ♂



Gloma fuscipennis Meig. ♂



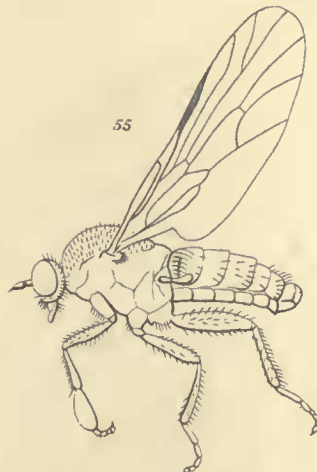
Timalpheus fumosa Rut. ♂



Apalocnemis obscura Phil.



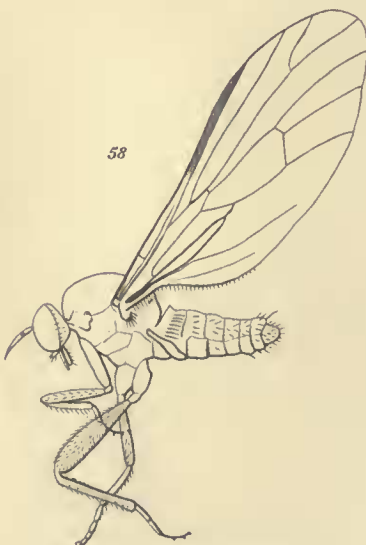
Bilarempis nudifacies Bezzi, ♂



Bilara macura Fabr. ♂



Neocota Weedii Coq. ♂



Haplomera gymnopoda Bezzi, ♀



Reophila Macquarti Zell. ♀



Atrichopteura Solneusei Bezzi, ♂

FAM. EMPIDIDÆ

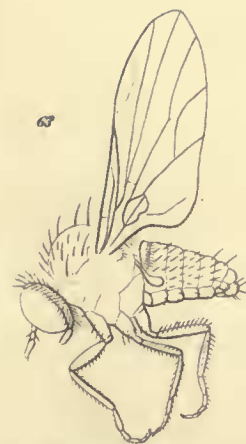
SUBFAM. EMPIDINÆ



Hesperempis Mabelæ Mel. ♂



Microphorus (Schistostoma) eremita Beck. ♂



Microphorus velutinus Macq. ♂



Lamposoma cavaticum Beck.



Proctinopyga amplexens, n.sp., ♂



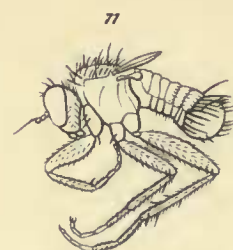
Philetus memorandus, n.sp., ♂



Coloboneura inusitata Mel. ♂



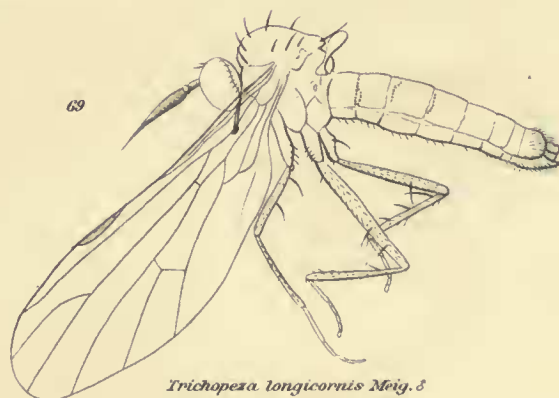
Ceratomerus paradoxus Phil.



Thinsdromia inchoata Mel. ♂



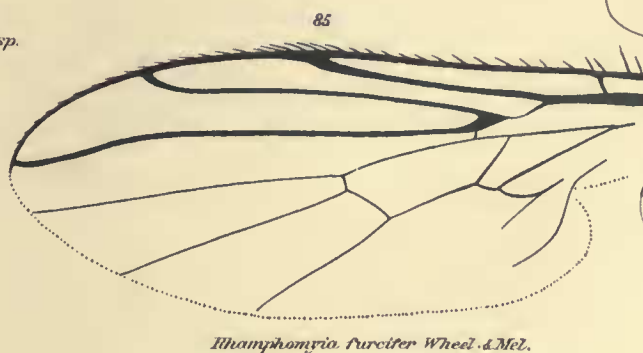
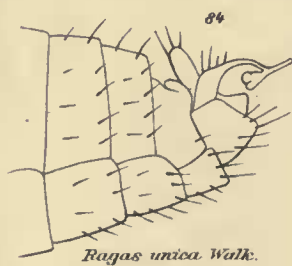
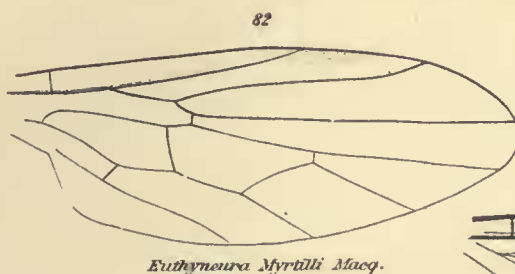
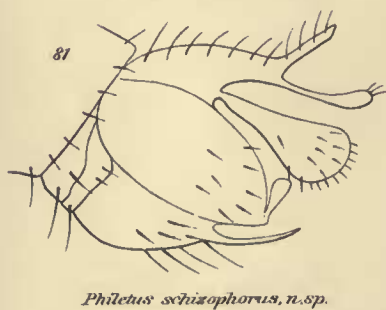
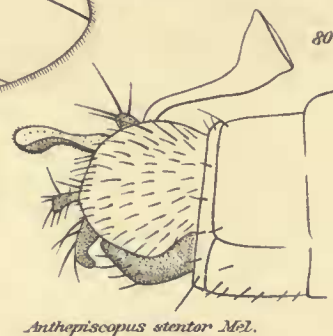
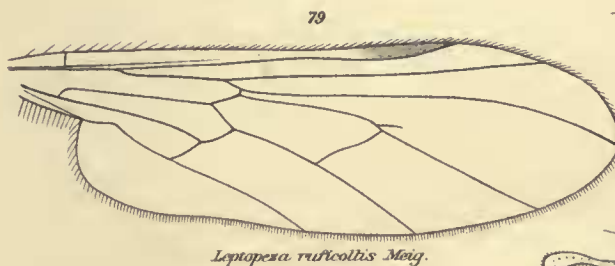
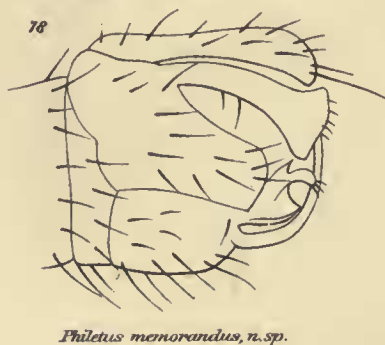
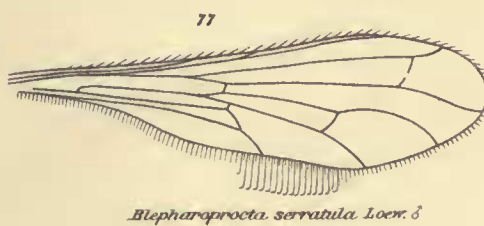
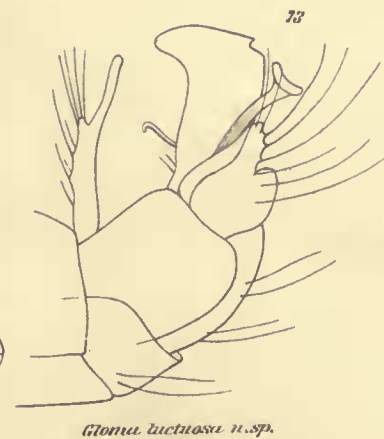
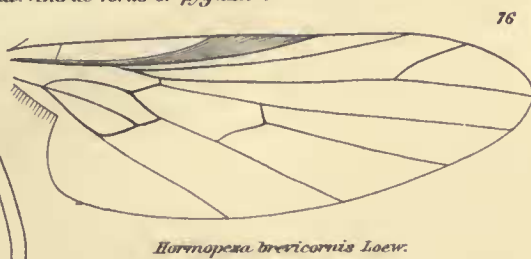
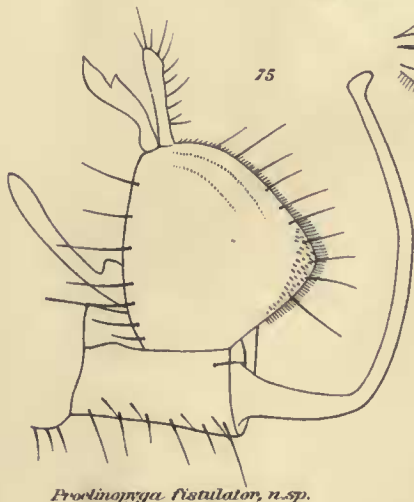
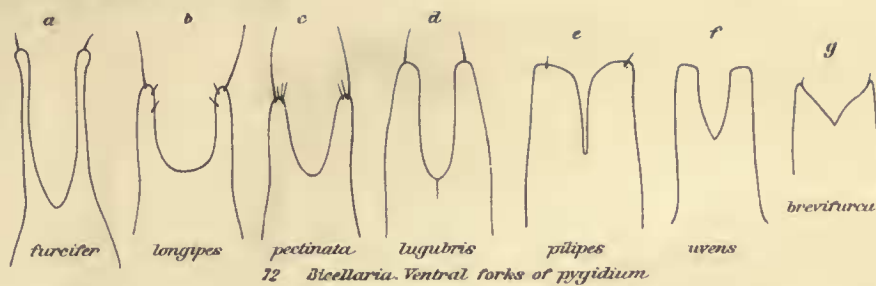
Heleodromia pullata Mel. ♂



Trichopeza longicornis Meig. ♂

FAM. EMPIDIDÆ

SUBFAM. EMPIDINÆ, CLINOCERATINÆ, TACHYDROMIINÆ



FAM. EMPIDIDÆ